



Ministry of
Transportation and
Communications

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 report





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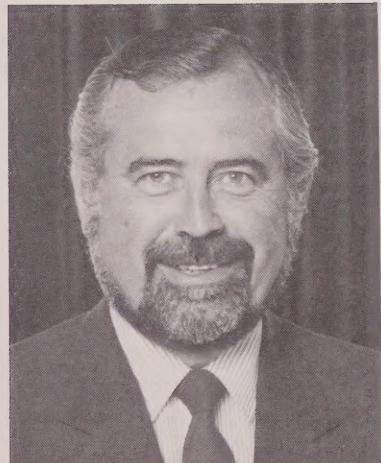
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**ontario
road safety
annual
report**

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minister's message



Ed Fulton

This year, the Ontario Road Safety Annual Report has been enhanced with a broader range of information. Since road safety is a multi-faceted field and concerns not only the Ministry of Transportation and Communications but other ministries, police forces and private sector organizations, we have incorporated information provided by the Ministries of Health and Attorney General. This will serve to broaden the road safety perspective and we look forward to inviting other organizations to provide relevant data in coming years.

Alcohol use continues to figure prominently in highway accidents. In the overview section of the book, we summarize findings from the roadside BAC (Blood Alcohol Concentration) survey conducted last summer by MTC, the Attorney General, Solicitor General, Transport Canada and the Addiction Research Foundation.

This study examined the drinking/driving picture in depth by selecting drivers across the province and asking them to answer a number of questions and agree to take part in a roadside breath test. The findings indicated there is still much to be done to remove impaired drivers from Ontario's highways.

1986 figures indicate a continuing downward trend in the number of persons killed. Specifically, there were 1,102 killed in motor vehicle accidents as opposed to 1,191 in 1985, a 7.5 percent decrease. In fact, 1986 had the lowest number of motor vehicle fatalities

since 1954. Personal injuries and property damage accidents were also down slightly. While this picture is encouraging, I believe the numbers of accidents remain too high and our efforts in this area must continue.

In 1986, MTC undertook several initiatives aimed at improving road safety. Among them was the development of promotional and educational programs and the introduction of legislative changes. However, without a corresponding change in people's attitudes, they can only be partially successful. With a view to supporting and encouraging the promotion of highway safety, the Community Highway Safety Office was formed in November, 1986. I am confident staff will develop initiatives conducive to a more positive public approach to highway safety.

A handwritten signature in black ink that reads "Ed Fulton".

Ed Fulton
Minister of
Transportation and Communications

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1 overview



1a.**synopsis**

In 1986 approximately 5.6 percent of Ontario drivers and 6.1 percent of registered Ontario vehicles were involved in motor vehicle accidents.

There were 187,286 reported accidents involving 347,998 individual vehicles. Of these accidents, 951 resulted in the death of at least one person while 73,703 accidents caused some sort of personal injury.

In terms of fatalities, 1,102 people were killed on Ontario roads in 1986. Another 108,839 people were injured. Of the people killed, 511 were drivers of passenger or commercial type vehicles, 289 were passengers in such vehicles, 99 were motorcycle operators and 15 were motorcycle passengers. Other types of road users, for example bicyclists, accounted for the remaining 35 fatalities.

Male drivers were involved in 82% of fatal accidents and 69% of personal injury accidents.

In 27% of all fatal accidents the involved drivers were either legally impaired or had been drinking while in personal injury and property damage accidents the percentage of alcohol involved drivers was 7% and 4% respectively.

The age group with the most deaths was the 25-34 year old category followed by the 21-24 year old group. The number of deaths in these groups was 192 and 159 respectively.

Selected Statistics

Total Reportable Accidents	187,286
Fatal Accidents	951
Personal Injury Accidents	73,703
Property Damage Accidents	112,632
Persons Killed	1,102
Drivers Killed	610
Drivers Killed (Impaired or Had Been Drinking)	286
Passengers Killed	304
Pedestrians Killed	153
Other Road Users Killed	35
Persons Injured	108,839
Estimated Ontario Population (1986)	9,181,900
Licensed Drivers	5,817,799
Registered Vehicles	5,421,220
Estimated Vehicle Kilometres Travelled (in millions)	68,465
Estimated Property Damage	\$583,938,134
Number of Persons Killed in Motor Vehicle Accidents per 100,000 People in Ontario	12.0
Number of Persons Killed in Motor Vehicle Accidents per 100 Million Kilometres Travelled	1.6
Accident Rate per 100 Million Kilometres Travelled	273.6
Fatal Accident Rate per 100 Million Kilometres Travelled	1.4

1b.

selected characteristics of motor vehicle accidents in 1986

Persons Killed

An encouraging downward trend in terms of the number of people killed continued in 1986. The number of fatalities dropped from 1985 and remains in the 1,100 to 1,200 range which started in 1982. Even though the Ontario population continued to grow and the number of licensed drivers has increased each year, the 1986 fatality total of 1,102 is the lowest number recorded since 1954.

Persons Injured

In 1985 the number of personal injuries reported rose sharply. This higher level was sustained in 1986 as the number of reported injuries was comparable to the 1985 figures.

In 1985, the sharp rise in the number of personal injuries was attributable to a significant increase in the reports of minimal injuries while the number of minor and major injury reports were comparable to previous years. In 1986, reports of minimal injuries increased again.

Over a ten year period, the level of minor and major injuries has fluctuated slightly within the 30,000-40,000 range. In this same period minimal injuries varied somewhat in the 45,000 to 52,000 range. In the last two years, however, the numbers of minimal injuries reported have exceeded the 60,000 level.

Driver Age

Driver inexperience seems to be a factor in accidents. Drivers between the ages of 16 and 20 had the greatest number of accidents relative to their representation in the driver population. The percentage of drivers involved in accidents began to decrease after the age of 20 and continued gradually downward with an increase starting again for drivers over age 75.

Driver Action

In approximately 44 percent of accidents the involved drivers were driving properly. Of the drivers who were not driving properly, the most common errors were failure to yield the right-of-way, speeding, loss of control and following too close. Speeding was the most common error in fatal accidents.

Class of Accident

Since 1977 there has been a general trend downward in the number of fatal accidents until in 1986 there were 951 fatal accidents, the lowest number in ten years.

As well, property damage accidents reached the lowest level in ten years in 1986 with a total of 112,632.

However, personal injury accidents remained at a level similar to 1985 which was the highest number in a ten year period. This is tied to increases in reports of minimal personal injuries referred to previously.

Generally, motor vehicle accidents involved collisions with moveable objects, occurred in winter months, happened with equal frequency on Friday, Saturday and Sunday and occurred in daylight conditions. However, fatal accidents showed characteristics which deviate from this pattern.

Alcohol Involvement

Alcohol involvement continues to be a factor in accidents but particularly fatal accidents. In the late seventies and early eighties in accidents where drivers were killed, the drivers were found to be alcohol involved more often than they were found to have a normal condition. One encouraging sign for those working against the Drinking/Driving problem is that since 1984 this had changed and less than one half of the drivers killed have been found to be alcohol involved.

The involvement of alcohol in accidents is not only a concern in regard to motor vehicle drivers but also for off-road vehicle operators, snowmobilers and pedestrians.

1c.

perspectives
on
highway
safety

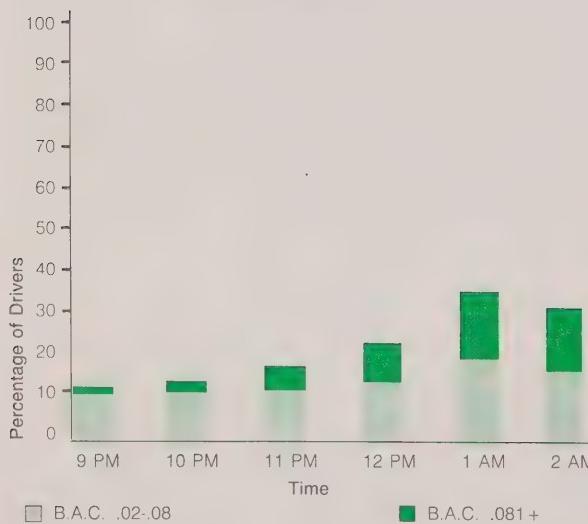
Drinking and Driving in Ontario

Contributed by Safety Coordination and Development Office, Ministry of Transportation and Communications.

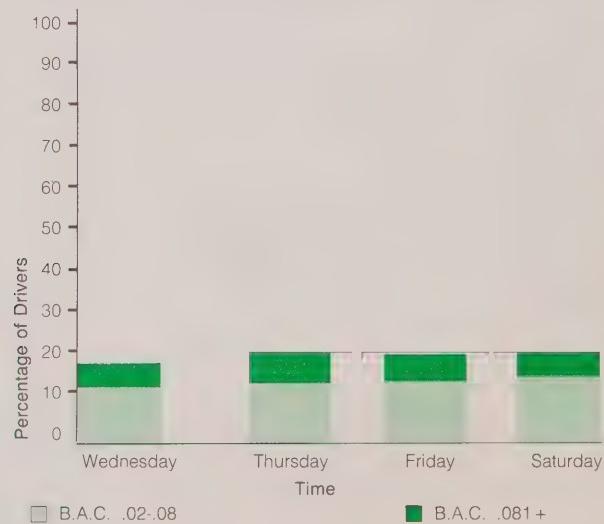
During June and July of 1986, the Ministry of Transportation and Communications was involved in a roadside survey of drivers. The survey was conducted under the direction of an interministerial committee which included MT_C, Transport Canada, the Addiction Research Foundation, the Ministry of the Attorney General and the Ministry of the Solicitor General.

Over 12,000 cars, light trucks and motorcycles were stopped between 9:00 p.m. and 3:00 a.m. on Wednesday to Saturday nights at 289 sites throughout Ontario. The drivers of these vehicles were asked to answer several questions and provide a breath sample. Information was obtained about the nature of that evening's trip, the driver's age, the driver's sex, and the driver's opinions on seat belt use, drinking/driving legislation and personal drinking habits. The breath sample was obtained to determine the driver's blood alcohol concentration (B.A.C.) level.

Driver B.A.C. by Time of Day
Roadside Survey — 1986



Driver B.A.C. by Day of Week
Roadside Survey — 1986



The data collected in the roadside survey showed that 1 out of every 18 drivers (5.5%) who provided a breath sample had a B.A.C. reading over the legal limit of .08. One in 5 (19.7%) drivers surveyed had some trace of alcohol in their system.

As one might expect, drivers on the road after midnight on Fridays and Saturdays were found to have higher blood alcohol concentrations and were more frequently legally impaired. The peak time for legally impaired drivers was at approximately 1:30 a.m.

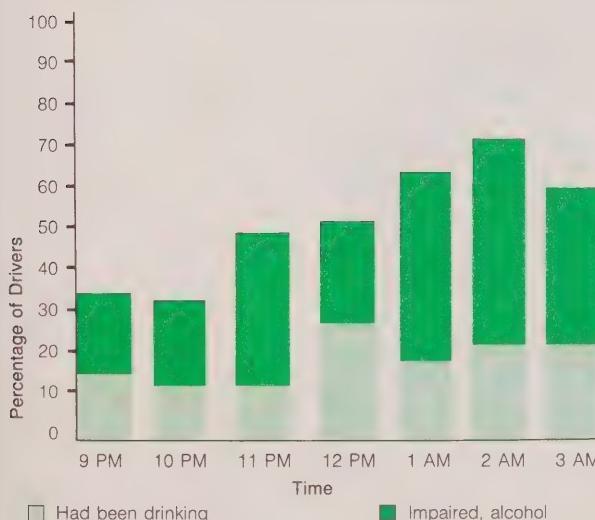
Results from roadside surveys and tabulation of alcohol involved accidents present two differing perspectives on drinking and driving. The two perspectives cannot be directly compared because the information is obtained in two very different manners but they both provide insight into the problem.

When the frequency of alcohol involved drivers (had been drinking and ability impaired, alcohol) in fatal accidents is examined similar patterns to those found in the roadside B.A.C. survey emerge. When fatal accidents were examined it was found that the peak time for alcohol involved drivers is between 1 and 2 o'clock in the morning. In 1986 72.4% of drivers in fatal crashes between 1 a.m. and 2 a.m. had either been drinking or were legally impaired. This one hour period had the largest proportion of alcohol involved drivers of any one hour period.

As mentioned above, the roadside survey found higher numbers of drinking drivers on Friday night/Saturday morning and Saturday night/Sunday morning. Similarly, the examination of fatal crashes found a predominance of the crashes occurred on Saturdays and Sundays. In 1986 39.1% of fatal crashes on Saturday and 35.3% of Sunday fatal crashes were alcohol involved. Drivers in fatal crashes on these two days were more likely to be alcohol involved than on any other day.

Single motor vehicle crashes are often used by highway safety researchers to estimate the extent of the drinking/driving problem. Using single vehicle accidents eliminates the effect of a second driver in the outcome of the accident. In 1986, 91.0 percent of the drivers in fatal, single vehicle accidents between 1 a.m. and 2 a.m. were alcohol involved.

Alcohol Involved Drivers by Time Of Day
Fatal Accidents — 1986



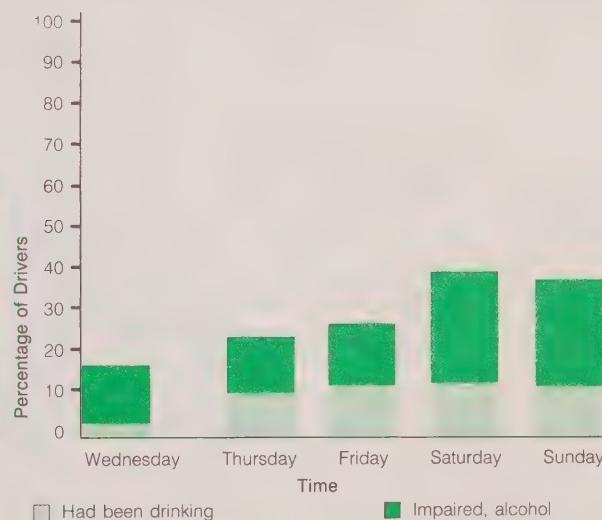
The four bar charts graphically present results obtained from the 1986 roadside B.A.C. survey and from an examination of 1986 fatal accidents. The similarities in their overall patterns are noteworthy.

Peak times for the occurrence of both drinking/driving and alcohol related crashes are late Friday night/early Saturday morning and late Saturday night/early Sunday morning. Other research studies carried out on the drinking/driving problem report that it is intensified in the summer months and primarily involves drivers who are in their mid-twenties and male although it is by no means restricted to only these types of drivers.

Understanding the various aspects of the drinking/driving problem aids greatly in the development of effective programs to counter it. By understanding the amount of drinking/driving taking place and the influence it has on accident involvement, the risk associated with drinking/driving can be evaluated. By understanding the characteristics of drinking drivers and their accidents, effective education, enforcement and deterrence campaigns can be mounted.

Drinking/driving is perhaps the most significant factor in fatal and serious injury accidents. Reducing its occurrence would go far in reducing the numbers of people killed and seriously injured in motor vehicle accidents.

Alcohol Involved Drivers by Day Of Week
Fatal Accidents — 1986



Measuring the Extent of Impaired Driving
Contributed by The Drinking/Driving Countermeasures Office, Ministry of The Attorney General.

There are two broad classes of alcohol-related crash based on the driver's condition: the driver who **had been drinking** with a blood alcohol content under 80 mg% and the driver who was legally **impaired** with a blood alcohol content of 80 mg% or over. These groupings are determined for each personal injury and property damage crash by the investigating officer and for each driver killed in a crash by blood analysis under coroner's order.

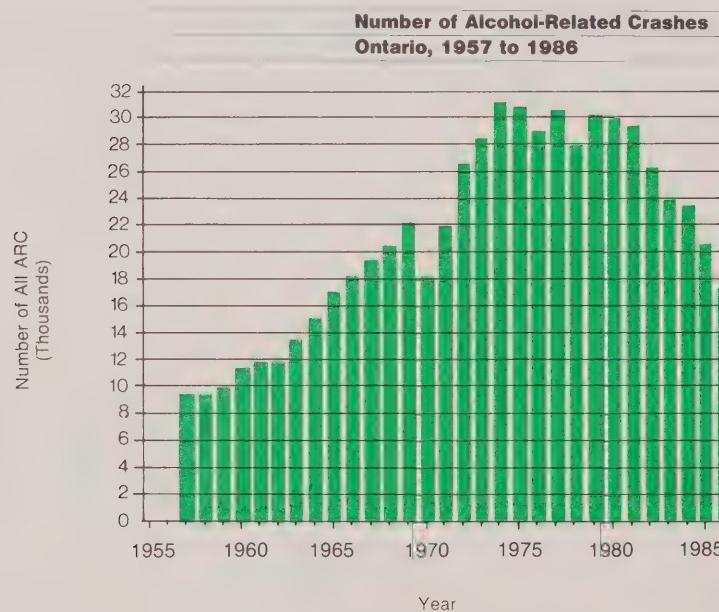
Information on blood alcohol content is more carefully collected in fatal crashes than in personal injury and property damage crashes since the police are not always able to accurately judge a driver's condition without recourse to A.L.E.R.T. breath analysis machines or Borkenstein breathalyzers. These mechanical aids are often not available to investigating officers. Consequently, the condition of some drinking drivers involved in less severe crashes is reported as normal.

Even though more crashes occur than are reported, it is still necessary in forming opinions about impaired driving in

Ontario, to use all the data provided by the Ontario Road Safety Annual Report since there are too few alcohol-involved driver fatalities to show trends. Other direct measures of impaired driving like police arrest data, and indirect measures such as unemployment figures or sales of alcohol and gasoline are useful in measuring the extent of the problem, but should not be given as much importance as the crash statistics. In order to claim that there has been a reduction in impaired driving, we take the view that there must be a reduction in both the number of all alcohol-related crashes and the rate of all alcohol-related crashes per 100,000 licensed drivers.

Impaired Driving in Ontario

How does the alcohol-related crash problem in Ontario look from this perspective? It appears that the problem is getting better recently after an increase to historic highs in the '70s. In particular, the rate per 100,000 drivers involved in all alcohol-related crashes rose from 459 in 1957 to a high of 787 in 1974 and fell to 302 in 1986. The absolute number of drivers involved in alcohol-related crashes was 9,577 in 1957, 31,277 in 1974 and 17,590 in 1986. The charts graphically show the rates and number of drivers involved in alcohol related crashes for the period 1957 to 1986.

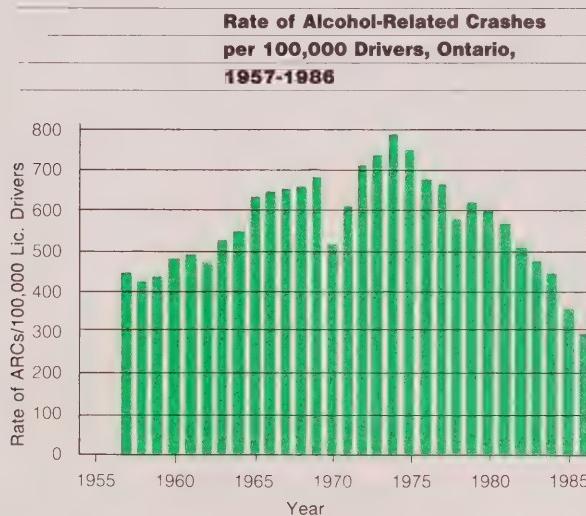


Young Drivers

Historically, drivers under age twenty-five have been in more motor vehicle crashes per driver than other age groups. This problem is also evident in alcohol-related crashes. Compared with 1957, drivers in this age group in 1986 have experienced an increase in their involvement in alcohol-related crashes relative to other age groups. However, the overrepresentation relative to the number holding licences for those under the age of twenty has been declining in recent years.

Regional Differences

In a province as geographically large and as sparsely settled as Ontario, there will be regional differences in the rates of alcohol-related crashes. Even if all Ontarians drank the same amount of alcohol and drove the same distance each year, it is still likely that variations in the crash rate would exist since people with a greater variety of means of transportation should have fewer alcohol-related crashes than those relying only on automobiles. Therefore, it is not surprising, that the rural areas of the province have more crashes with alcohol-involved drivers than the cities.



Motor Vehicle Accidents — Health Perspective
Contributed by the Information Resources and Services
Branch, Ministry of Health.

The majority of persons injured in motor vehicle accidents are taken to or arrive at hospital emergency departments. Most of these people have sustained minimal or minor injuries and are treated and released without a hospital admission. Persons with major and severe injuries are, however, admitted to a hospital for in-patient care. Since detailed statistics are captured for in-patients, this section describes the admissions of those individuals for in-patient care.

During the fiscal year April 1, 1985 to March 31, 1986, Ontario hospitals reported 12,987 acute (short-term) hospital admissions related to motor vehicle accidents. This number

represents approximately 12 percent of all motor vehicle injuries in Ontario.

The 12,987 acute hospital admissions accounted for 137,309 hospital days of stay during the fiscal year 1985-86. The average length of stay per admission was 10.6 hospital days.

According to hospital records, 5,720 patients underwent some type of surgery in the course of their hospital treatment. 264 patients died in the hospitals following their admission for in-patient care.

Ontario residents accounted for 95 percent of hospitalized injuries, Quebec residents for 3 percent, and the rest of patients were residents of other Canadian provinces and the United States.

Selected Diagnoses of Motor Vehicle Accident Injuries Hospitalized in Ontario, 1985/86

Selected Diagnoses	Hospital Admissions	Hospital Days of Stay
Fracture of skull	774	8,032
Fracture of neck and trunk	1,712	26,912
Fracture of upper limb	925	7,160
Fracture of lower limb	2,053	35,832
Dislocation, sprains and strains	715	5,029
Intracranial injury, excluding those with skull fracture	2,798	23,732
Internal injury of chest, abdomen and pelvis	748	7,890
Open wound of head, neck and trunk	612	2,421
Open wound of upper limb	95	484
Open wound of lower limb	178	1,699
Other injuries, burns and traumatic complications	2,377	18,118
Total Admissions and Days	12,987	137,309

Selected Surgical Procedures for Motor Vehicle Accident Injuries Hospitalized in Ontario, 1985/86

Selected Procedures	Hospital Admissions	Hospital Days of Stay
Operations on skull, brain and cerebral meninges	233	9,187
Operations on spinal cord and canal structures	67	1,188
Operations on nose, mouth and pharynx	112	523
Operations on chest wall, pleura, mediastinum and diaphragm	134	1,843
Operations on bone marrow and spleen	151	2,817
Operations on kidney	175	1,502
Operations on facial bones and joints	254	2,279
Reduction of fracture and dislocation	2,348	37,303
Repair and plastic operations on joint structures	228	4,074
Operations on skin and subcutaneous tissue	1,017	6,479
Other surgical procedures	1,001	16,367
Sub-total of surgical admissions and days	5,720	83,562
No surgical procedures reported	7,267	53,747
Total admissions and days	12,987	137,309

2 the people

The number of people killed in traffic accidents in 1986 was 1,102. Since 1982, the number of fatalities has fluctuated in the range between 1,000 and 1,200.

In terms of injuries, there was a total of 108,839 injuries in 1986. While the total number of injuries is marginally lower than in 1985, the tendency toward an increase in the number of minimal injuries seen in recent years continues.

41.1 percent of those killed in accidents in 1986 were between the ages of 16 and 29. 44.6 percent of those injured were within this same age group. Alcohol involvement was reported in 46 percent of drivers killed in 1986. Alcohol involvement also figured in 27 percent of pedestrian fatalities.



2a.**people in
accidents****Table 2.1****Category of Involved Person by Severity of Injury 1986**

Category of Involved Person	Severity of Injury					Total
	None	Minimal	Minor	Major	Fatal	
Driver	264,071	35,106	18,436	3,691	511	321,815
Passenger*	170,172	20,105	12,416	2,394	289	205,376
Pedestrian	288	1,994	2,710	1,077	153	6,222
Bicyclist	123	2,307	2,010	364	29	4,833
Moped Driver	5	9	12	5	—	31
Motorcycle Driver	770	1,858	2,152	1,002	99	5,881
Motorcycle Passenger	172	319	389	162	15	1,057
Other	9,417	99	120	102	6	9,744
Total	445,018	61,797	38,245	8,797	1,102	554,959

*Includes Bus Passengers

For all persons involved in motor vehicle accidents, 0.2% were fatally injured, 1.6% suffered major injuries, 6.9% had minor injuries, 11.1% had minimal injuries and 80.2% had no injuries (see Glossary for explanation of injury severity).

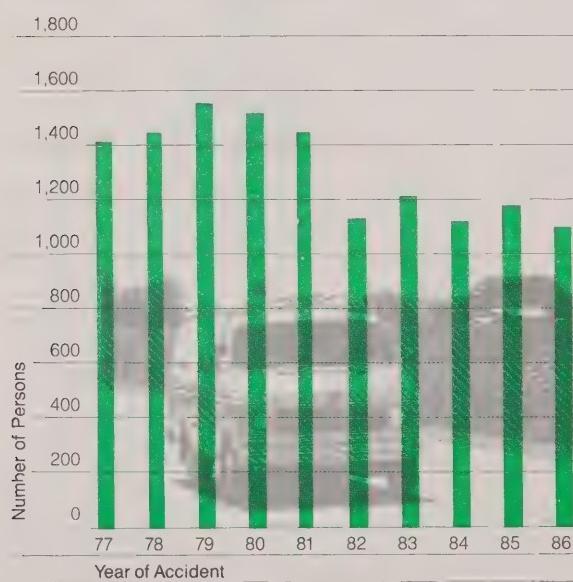
Figure 2.1**Persons Killed 1977-1986**

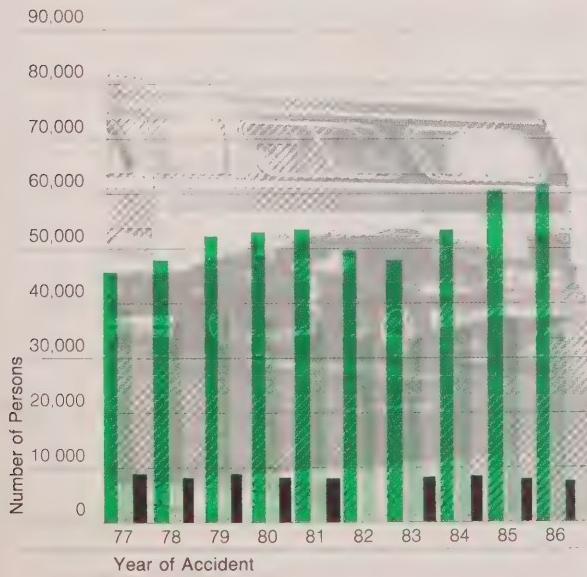
Table 2.2**Category of Persons Killed by Age Groups 1986**

Category of Persons	Age Groups														Total	
	0-4	5-15	16	17	18	19	20	21-24	25-34	35-44	45-54	55-64	65-74	75+	UK	
Driver	—	1	7	6	7	25	13	87	113	78	53	60	37	23	1	511
Passenger	12	41	16	11	9	11	9	26	30	25	20	27	31	21	—	289
Pedestrian	8	17	3	2	2	2	3	11	21	22	13	13	19	17	—	153
Bicyclist	1	10	2	—	—	2	3	3	2	2	—	1	2	—	1	29
Moped Driver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Motorcycle Driver	—	3	1	4	10	11	8	25	24	12	1	—	—	—	—	99
Motorcycle Passenger	—	2	—	2	—	3	—	6	1	1	—	—	—	—	—	15
Other	—	1	—	—	—	1	1	1	1	—	—	1	—	—	—	6
Total	21	75	29	25	28	55	37	159	192	140	87	102	89	61	2	1,102

Figure 2.2**Persons Injured and Severity of Injury 1977-1986**

Minimal and minor injuries continue to increase slightly while major injuries have decreased.

■ Minimal injuries □ Minor injuries ■ Major injuries

**Figure 2.3****Per Cent of Total Persons Killed by Age 1986**

Approximately 31% of persons killed were between ages 16 and 29.

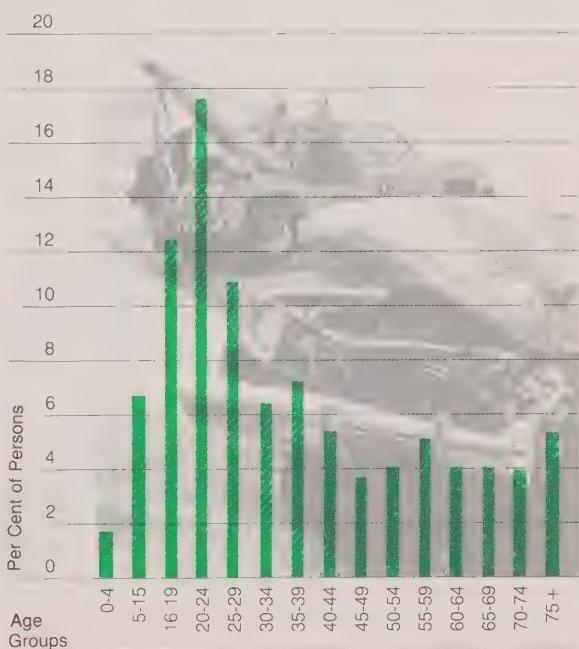
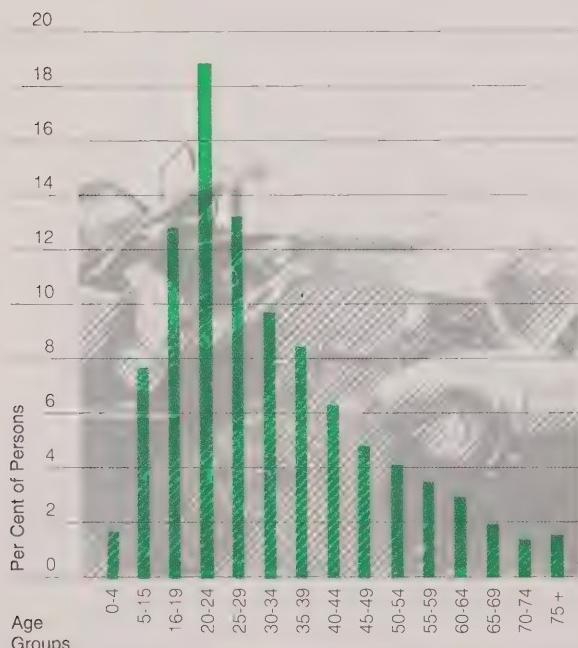


Table 2.3**Category of Persons Injured by Age Groups 1986**

Category of Persons	Age Groups														Total	
	0-4	5-15	16	17	18	19	20	21-24	25-34	35-44	45-54	55-64	65-74	75+	UK	
Driver	—	60	766	1,296	1,611	1,843	2,012	8,793	16,048	11,146	6,537	4,337	1,977	746	61	57,233
Passenger	1,577	4,963	1,132	1,264	1,348	1,349	1,369	4,574	6,190	3,625	2,685	2,303	1,481	731	324	34,915
Pedestrian	285	1,605	148	124	129	125	113	495	750	566	396	404	295	278	68	5,781
Bicyclist	28	1,641	262	231	192	200	194	543	581	183	82	60	24	14	446	4,681
Moped Driver	—	2	1	2	—	—	1	5	5	3	2	2	2	—	1	26
Motorcycle Driver	—	57	192	313	378	513	490	1,390	1,152	367	97	37	13	1	12	5,012
Motorcycle Passenger	2	79	58	86	85	76	89	216	118	40	10	4	—	—	7	870
Other	7	78	19	19	16	12	11	34	54	30	19	16	2	2	2	321
Total	1,899	8,485	2,578	3,335	3,759	4,118	4,279	16,050	24,898	15,960	9,828	7,163	3,794	1,772	921	108,839

Figure 2.4**Per Cent of Total Persons
Injured by Age 1986**

Note: Age groups in Tables 2.2 and 2.3 and Figures 2.3 and 2.4 are not directly comparable. Age groups in Figures 2.3 and 2.4 have been recombined into groups of equal size, each covering a 5 year period. The exception to this rule occurs in the teen's category where the break occurs at age 16 to accommodate for age of driver licensure.

Table 2.4
**Sex of Driver by
Class of Accident 1986**

Sex of Driver	Class of Accident			Total
	Fatal	Personal	Property Damage	
Male	1,238	89,924	135,229	226,391
Female	262	36,848	50,866	87,976
Unknown	12	3,177	10,295	13,484
Total	1,512	129,949	196,390	327,851

While males represent 56% of the licensed driver population (See Table 2.18) they represent 69% of all drivers involved in all accidents. In fatal accidents 82% of the involved drivers were male.

Table 2.5
**Driver Condition by
Class of Accident 1986**

Condition of Driver	Class of Accident			Total
	Fatal	Personal	Property Damage	
Normal	1,021	112,682	171,965	285,668
Had Been Drinking	140	5,457	4,881	10,478
Ability Impaired Alcohol	275	3,691	3,146	7,112
Ability Impaired Drugs	—	52	41	93
Fatigue	12	633	535	1,180
Medical or Physical Defect	5	385	271	661
Unknown	58	6,897	15,432	22,387
Other	1	152	119	272
Total	1,512	129,949	196,390	327,851

The percentage of drivers whose condition was reported to be normal decreases by accident severity from property damage accidents to fatal accidents. Specifically, a driver condition of normal was reported in 87.5% of property damage accidents, 86.9% of personal injury accidents and 67.5% of fatal accidents.

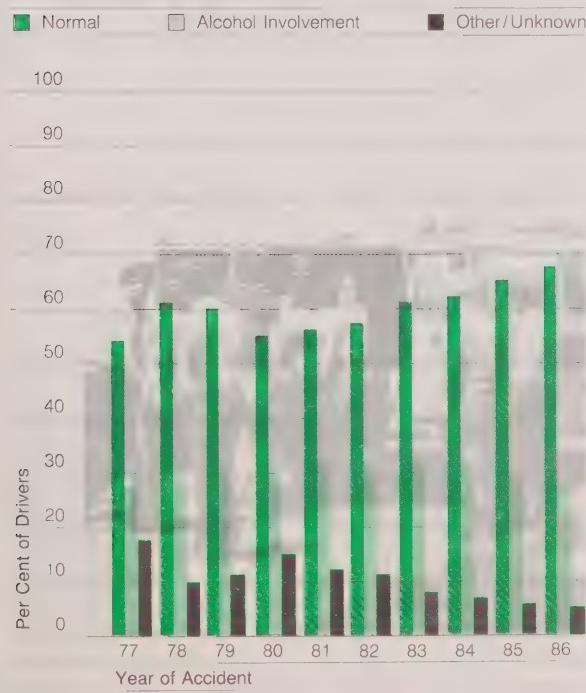
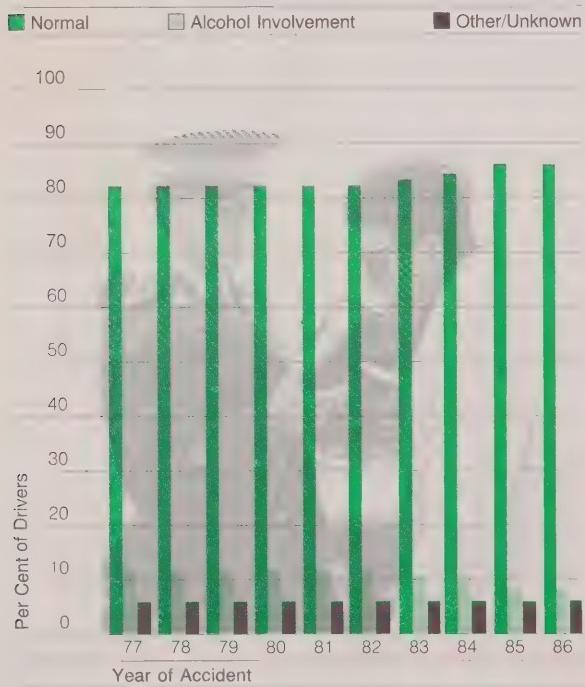
Figure 2.5
**Per Cent Driver Condition in
Fatal Accidents 1977-1986**

Table 2.6**Driver Age by Driver Condition
In All Accidents 1986**

Driver Age	Driver Condition		Had Been Drinking	Other	Unknown	Total
	Ability Impaired	Alcohol				
	Normal					
Under 16	304	5	20	4	35	368
16	4,574	23	84	25	138	4,844
17	7,050	77	226	47	212	7,612
18	8,517	160	375	81	275	9,408
19	9,097	251	623	80	339	10,390
20	9,679	308	665	102	354	11,108
21-24	41,314	1,454	2,581	360	1,547	47,256
25-34	78,038	2,495	3,354	512	2,577	86,976
35-44	54,734	1,207	1,387	320	1,527	59,175
45-54	32,806	658	640	200	853	35,157
55-64	23,692	345	342	204	593	25,176
65-74	11,537	101	148	160	254	12,200
75 & over	4,214	19	25	108	121	4,487
Unknown	112	9	8	3	13,562	13,694
Total	285,668	7,112	10,478	2,206	22,387	327,851

Figure 2.6**Per Cent Driver Condition in
Personal Injury Accidents 1977-1986****Table 2.7****Recorded Occurrence of Alcohol
In Drivers Killed * 1986**

Recorded Occurrence	Drivers Number	Drivers %
Apparently Normal	335	54.0
Ability Impaired by Alcohol	220	35.4
Had Been Drinking	66	10.6
Total	621	100.0

*Excludes cases where alcohol usage was not provided and conditions other than normal.

Figure 2.7**Per Cent Recorded Alcohol
Occurrence in Drivers Killed
1977-1986**

The proportion of alcohol involvement in drivers killed has fluctuated during the past decade. However, since 1981, there has been a decline each year, until, in the past three years, a larger percentage of drivers were reported to be "normal" than alcohol involved.

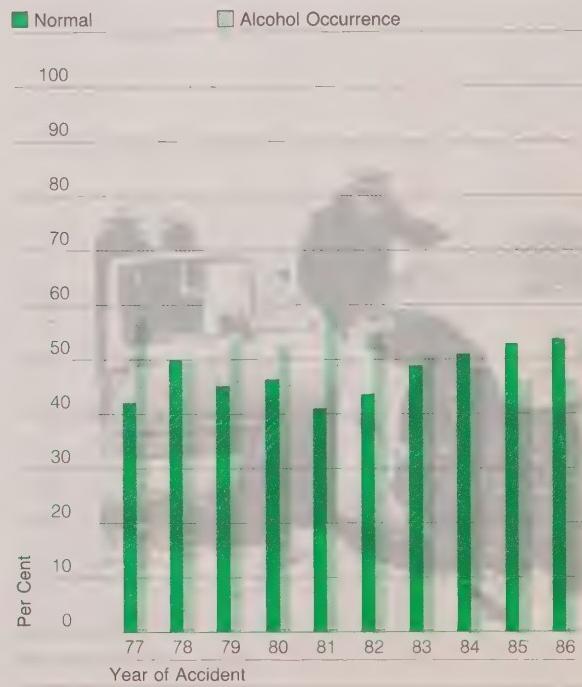


Table 2.8 Apparent Driver Action by Class of Accident 1986

Apparent Driver Action	Class of Accident			Total
	Fatal	Personal Injury	Property Damage	
Driving Properly	623	59,558	84,880	145,061
Following Too Close	6	8,681	10,068	18,755
Speed Too Fast	247	11,611	14,476	26,334
Improper Turn	23	4,032	9,164	13,219
Disobey Traffic Signal	27	3,326	3,849	7,202
Disobey Stop Sign	46	1,895	2,060	4,001
Fail to Yield				
Right-Of-Way	122	12,526	23,207	35,855
Improper Passing	29	1,687	3,615	5,331
Lost Control	105	8,728	13,324	22,157
Wrong Way On				
One-Way Road	7	99	137	243
Disobey Other Controls	6	49	75	130
Unknown	161	7,973	17,855	25,989
Other*	110	9,784	13,680	23,574
Total	1,512	129,949	196,390	327,851

*Includes actions defined as Careless Driving, Inattentive Driving, Fell Asleep, Hit and Run, On Wrong Side of Road, Improper Parking, Impaired, Illegally Parked, Dangerous Driving, Inexperience, etc. Of drivers involved in all accidents, 44.3% were driving properly. In fatal accidents, 41.2% of drivers were driving properly.

The most common driver errors in fatal accidents where a cause was known remain: Speed Too Fast (16.3%), and Fail To Yield (8.1%). For accidents in general for which a cause was known, the most common errors remain: Fail To Yield (10.9%), Speed Too Fast (8.0%), Lost Control (6.8%), and Following Too Close (5.7%).

Table 2.9**Severity of Driver Injury by Seat Belt Usage 1986**

Severity of Injury	Seat Belt Usage						Total Number %	
	Installed		Installed Not In		Usage			
	In-Use	Number	Number	%	Unknown	Number		
None	227,853	82.6	13,567	65.4	22,651	90.4	264,071 82.1	
Minimal	31,007	11.2	3,106	14.9	993	4.0	35,106 10.9	
Minor	14,790	5.4	2,780	13.4	866	3.4	18,436 5.7	
Major	2,193	0.8	1,058	5.1	440	1.8	3,691 1.1	
Fatal	163	0.06	254	1.22	94	0.4	511 0.2	
Total	276,006	100.0	20,765	100.0	25,044	100.0	321,815 100.0	

Table 2.10**Severity of Passenger Injury by Seat Belt Usage 1986**

Severity of Injury	Seat Belt Usage						Total Number %	
	Installed		Installed Not In		Usage			
	In-Use	Number	Number	%	Unknown	Number		
None	107,123	80.6	11,127	58.0	11,653	89.0	129,903 78.7	
Minimal	15,951	12.0	3,571	18.6	583	4.4	20,105 12.2	
Minor	8,473	6.4	3,378	17.6	565	4.3	12,416 7.5	
Major	1,182	0.9	954	5.0	258	2.0	2,394 1.4	
Fatal	92	0.07	160	0.83	37	0.3	289 0.2	
Total	132,821	100.0	19,190	100.0	13,096	100.0	165,107 100.0	

Seat belts are not used by approximately one-third of Ontario drivers and passengers. These tables indicate that in accidents, deaths and serious injuries are proportionately much higher for the non-wearing groups; emphasizing the protective value of seat belts particularly in certain types of accidents.

Table 2.11 Restraint Use for Children (0-4 Years) Killed 1982-1986

Year	Restraint		No Restraint		Unknown		Total	
	Number	%	Number	%	Number	%	Number	%
1982	1	8.3	10	83.3	1	8.3	12	100
1983	2	20.0	5	50.0	3	30.0	10	100
1984	3	27.3	8	72.7	—	0.0	11	100
1985	4	33.3	7	58.3	1	8.3	12	100
1986	7	58.3	5	41.7	—	0.0	12	100

Table 2.12 Restraint Use for Children (0-4 Years) Injured by Severity of Injury 1982-1986

Year	% of Unrestrained		% of Restrained	
	Minimal / Major /		Minimal / Major /	
	Minor	Fatal	Minor	Fatal
1982	89.5	10.5	93.4	6.6
1983	88.6	11.4	92.7	7.3
1984	90.7	9.2	96.4	3.6
1985	87.9	12.1	94.9	5.1
1986	89.3	10.7	94.8	5.2

Examination of fatalities, shows that those children who were restrained were in vehicles where other occupants were also killed. However, in the majority of cases, where children were unrestrained, they were the only one killed in that vehicle. Although most children travel restrained, the smaller group of unrestrained children suffer a proportionately higher incidence of severe and fatal injuries.

An additional estimated 20% of injuries are unreported in the figures as they occur not in accident situations but as a result of sudden stops or swerves. An unrestrained child can fall off the seat, impacting the vehicle interior or can be ejected.

Table 2.14 Apparent Pedestrian Action by Severity of Injury 1986

Apparent Pedestrian Action	Killed	Injured
Crossing Intersection With Right-of-Way	8	1,126
Crossing Intersection Without Right-of-Way	13	428
Crossing Intersection No Traffic Control	3	147
Crossing Pedestrian Crossover	2	212
Walking on Roadway With Traffic	16	158
Walking on Roadway Against Traffic	4	105
On Sidewalk or Shoulder	10	422
Coming from Behind Parked Vehicle or Object	6	385
Playing or Working on Highway	4	98
Running into Roadway	20	1,033
Crossing Through Traffic	44	844
Other	23	823
Total	153	5,781

Pedestrian interaction with traffic remains relatively stable over the years. The major causes of death and injury are through crossing the intersection with right-of-way (19%) running into the roadway (18%) and crossing through traffic (15%), the latter causing a higher proportion of fatalities, due presumably to higher traffic speeds than encountered at intersections.

Table 2.13 Pedestrian Condition by Severity of Injury 1986

Condition of Pedestrian	Killed	Injured
Normal	107	4,570
Had Been Drinking	12	393
Ability Impaired Alcohol	30	135
Ability Impaired Drugs	—	7
Fatigue	—	1
Medical or Physical Defect	4	95
Unknown	—	516
Other	—	64
Total	153	5,781

While 27% of pedestrians killed had been drinking or were impaired by alcohol, only 9% of pedestrians injured were alcohol involved.

2b.

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Table 2.15 Category of Persons Killed and Injured 1977-1986

Year	Ontario Population (Est.)	Category of Persons								Persons Killed In All Classes	Persons Injured In All Classes		
		Driver		Passenger*		Pedestrian		All Others					
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured				
1977	8,373,000	609	45,620	393	34,854	252	6,998	166	8,192	1,420	17.0	95,664	1,142.5
1978	8,444,000	623	46,953	383	34,578	284	6,314	160	7,494	1,450	17.2	94,979	1,124.8
1979	8,546,000	668	50,618	468	36,332	273	6,436	151	7,935	1,560	18.3	101,321	1,185.6
1980	8,570,000	682	50,653	413	35,982	266	6,548	147	8,184	1,508	17.6	101,367	1,182.8
1981	8,625,000	657	50,574	393	34,450	237	6,344	158	8,953	1,445	16.8	100,321	1,163.1
1982	8,715,000	487	45,409	296	31,588	179	5,981	176	9,837	1,138	13.1	92,815	1,065.0
1983	8,816,000	528	45,440	302	30,283	204	5,618	170	10,365	1,204	13.7	91,706	1,040.2
1984	9,024,000	460	48,674	282	31,865	189	5,767	201	10,924	1,132	12.5	97,230	1,077.5
1985	9,066,000	502	55,859	333	35,717	182	6,099	174	11,494	1,191	13.1	109,169	1,204.2
1986	9,181,900	511	57,233	289	34,915	153	5,781	149	10,910	1,102	12.0	108,839	1,185.4

*Excludes motorcycle passengers. (Motorcycle passengers included with "all others".) The trend toward a decrease in the rate of fatalities per 100,000 population continues. Although the number of drivers killed shows a slight increase the total number of fatalities is the lowest since 1954.

Table 2.16 Sex of Driver Population by Age Groups 1986

Sex of Driver	Age Groups							Total
	16-19	20-24	25-34	35-44	45-54	55-64	65+	
Male	169,269	374,689	793,030	674,238	476,664	410,698	341,445	3,240,033
Female	125,838	301,594	701,628	583,486	363,658	286,556	215,006	2,577,766
Total	295,107	676,283	1,494,658	1,257,724	840,322	697,254	556,451	5,817,799

Table 2.17 Driver Population Age Groups 1977-1986

Year	Age Groups							Total
	16-19	20-24	25-34	35-44	45-54	55-64	65+	
1977	327,021	604,822	1,188,170	846,727	739,247	517,903	339,013	4,562,903
1978	333,929	625,774	1,231,844	882,939	749,350	541,028	360,682	4,725,546
1979	352,617	636,554	1,264,128	912,519	755,093	559,011	378,429	4,858,351
1980	345,077	647,805	1,300,738	943,540	764,308	508,173	407,830	4,993,471
1981	354,492	659,144	1,313,592	990,806	771,931	604,892	428,320	5,123,177
1982	342,136	670,118	1,328,974	1,051,422	779,235	628,131	447,182	5,247,198
1983	320,478	682,033	1,359,350	1,103,403	792,933	650,687	471,375	5,380,259
1984	300,364	689,476	1,396,560	1,155,421	806,207	671,271	494,612	5,513,911
1985	293,908	687,467	1,443,327	1,205,614	820,397	685,640	524,069	5,660,422
1986	295,107	676,283	1,494,658	1,257,724	840,322	697,254	556,451	5,817,799

The licensed driver population continues to change. The greatest growth occurred in the 35-44 age category while there was a decline in the number of drivers in the 20-24 age group.

Table 2.18 Driver Licence Class by Sex 1986

Licence Class	Driver Sex				Total	%
	Male	%	Female	%		
A	79,345	.24	587	.02	79,932	.137
AM	23,537	.72	98	.00	23,635	.40
AB	3,215	.09	166	.00	3,381	.05
AC	9,730	.30	99	.00	9,829	.16
ABM	1,338	.04	56	.00	1,394	.02
ACM	3,905	.12	28	.00	3,933	.06
B	15,280	.47	11,865	.46	27,145	.46
BM	3,516	.10	562	.02	4,078	.07
C	9,186	.28	360	.01	9,546	.16
CM	2,208	.06	34	.00	2,242	.03
D	165,898	5.12	4,508	.17	170,406	.292
DM	33,022	1.01	271	.01	33,293	.57
DE	75	.00	14	.00	89	.00
DF	2,398	.07	68	.00	2,466	.04
DEM	15	.00	0	.00	15	.00
DFM	889	.02	6	.00	895	.01
E	1,181	.03	2,050	.07	3,231	.05
EM	140	.00	30	.00	170	.00
F	9,298	.28	4,869	.18	14,167	.24
FM	2,208	.06	260	.01	2,468	.04
G	2,573,780	79.43	2,513,046	97.48	5,086,826	87.43
GM	294,349	9.08	37,904	1.47	332,253	5.71
M	5,520	.17	885	.03	6,405	.11
Other/Unknown	0	.00	0	.00	0	.00
Total	3,240,033	100.00	2,577,766	100.00	5,817,799	100.00

Table 2.19 Licensed Drivers, Total Accidents, Persons Killed and Persons Injured 1931-1986

Year	Licensed Drivers	Total Accidents	Persons Killed	Persons Injured
1931	666,266	9,241	571	8,494
1932	648,710	9,171	502	8,231
1933	638,280	8,634	403	7,877
1934	665,743	9,645	512	8,990
1935	707,457	10,648	560	9,839
1936	755,765	11,388	546	10,251
1937	802,765	13,906	766	12,092
1938	866,729	13,715	640	11,683
1939	899,572	13,710	652	11,638
1940	937,551	16,921	716	13,715
1941	986,773	18,167	801	14,275
1942	961,883	13,490	567	10,205
1943	919,457	11,025	549	8,628
1944	905,650	11,004	498	8,373
1945	971,852	13,458	598	9,804
1946	1,087,445	17,356	688	12,228
1947	1,144,291	22,293	734	13,056
1948	1,209,408	27,406	740	14,970
1949	1,278,584	34,472	830	17,469
1950	1,366,388	43,681	791	19,940
1951	1,461,538	54,920	949	22,557
1952	1,556,559	58,515	1,010	23,643
1953	1,656,259	65,866	1,082	24,353
1954	1,747,567	62,509	1,045	24,607
1955	1,856,845	63,219	1,111	26,246
1956	1,967,789	71,399	1,180	28,626
1957	2,088,551	76,302	1,279	30,414
1958	2,176,417	76,884	1,112	30,106
1959	2,270,246	81,518	1,187	31,602
1960	2,355,567	87,186	1,166	34,436
1961	2,414,615	85,577	1,268	37,146
1962	2,469,425	94,231	1,383	41,766
1963	2,555,015	104,919	1,421	47,801
1964	2,694,023	111,232	1,424	54,560
1965	2,739,138	128,462	1,611	60,917
1966	2,821,648	139,781	1,596	65,210
1967	3,004,654	145,008	1,719	67,280
1968	3,128,509	155,127	1,586	71,520
1969	3,247,979	169,395	1,683	74,902
1970	3,422,892	141,609	1,535	75,126

Table 2.19**Licensed Drivers, Total Accidents, Persons Killed and Persons Injured 1931-1986 (continued)**

Year	Licensed Drivers	Total Accidents	Persons Killed	Persons Injured
1971	3,563,197	158,831	1,769	84,650
1972	3,688,541	189,494	1,934	95,181
1973	3,841,628	193,021	1,959	97,790
1974	3,972,980	204,271	1,748	98,673
1975	4,160,623	213,689	1,800	97,034
1976	4,315,925	211,865	1,511	83,736
1977	4,562,903	218,567	1,420	95,664
1978	4,725,546	186,363	1,450	94,979
1979	4,858,351	197,196	1,560	101,321
1980	4,993,531	196,501	1,508	101,367
1981	5,123,177	198,372	1,445	100,321
1982	5,247,198	187,943	1,138	92,815
1983	5,380,259	181,999	1,204	91,706
1984	5,513,911	194,782	1,132	97,230
1985	5,660,422	189,750	1,191	109,169
1986	5,817,799	187,286	1,102	108,839

Traffic accident fatalities have decreased significantly from a peak of 1,959 in 1973 to the 1986 volume of 1,102, the lowest number of fatalities since 1954. The total number of persons injured in 1985 and 1986 shows an increase over other years and reflects the increasing volumes of reported minimal injuries.

Table 2.20**Original Licences Issued 1982-1986**

Year	Original Licences
1982	222,143
1983	209,682
1984	209,675
1985	224,513
1986	231,697

Table 2.21**Temporary Licence Permits
Issued for Class L's and
Class R's 1982-1986**

Year	Licence Permits	
	L	R
1982	358,615	45,657
1983	336,808	44,404
1984	342,045	45,672
1985	352,908	43,967
1986	369,626	42,032

Table 2.22**Driver Age Groups — Number Licensed, Accident Involvement and
Per Cent Involved in Accidents 1986**

Drivers' Age	Drivers			Drivers Involved in Accidents			% of Drivers of Each Age Involved in Accidents					
	Licensed						Male	Female	Total	Male	Female	Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Under 16	—	—	—	281	87	368	—	—	—	—	—	—
16	19,139	12,598	31,737	3,414	1,430	4,844	17.8	11.4	15.3	—	—	—
17	42,941	31,566	74,507	5,354	2,258	7,612	12.5	7.2	10.2	—	—	—
18	50,726	38,543	89,269	6,847	2,561	9,408	13.5	6.6	10.5	—	—	—
19	56,463	43,131	99,594	7,742	2,648	10,390	13.7	6.1	10.4	—	—	—
20	62,621	48,503	111,124	8,185	2,923	11,108	13.1	6.0	10.0	—	—	—
21-24	312,068	253,091	565,159	34,917	12,339	47,256	11.2	4.9	8.4	—	—	—
25-34	793,030	701,628	1,494,658	62,115	24,861	86,976	7.8	3.6	5.8	—	—	—
35-44	674,238	583,486	1,257,724	40,391	18,784	59,175	6.0	3.2	4.7	—	—	—
45-54	476,664	363,658	840,322	25,763	9,394	35,157	5.4	2.6	4.2	—	—	—
55-64	410,698	286,556	697,254	18,951	6,225	25,176	4.6	2.2	3.6	—	—	—
65-74	250,345	168,306	418,651	8,832	3,368	12,200	3.5	2.0	2.9	—	—	—
75 & Over	91,100	46,700	137,800	3,438	1,049	4,487	3.8	2.2	3.3	—	—	—
Unknown	—	—	—	—	—	—	—	—	—	—	—	—
Total	3,240,033	2,577,766	5,817,799	226,391	87,976	327,851	7.0	3.4	5.6	—	—	—

Accident involvement for both males and females is highest at age 16. In each age grouping males outnumber females in accident involvement.

Figure 2.8**Per Cent of Licensed Drivers Involved
in Accidents by Age 1986**

3

the accident

The general downward trend in the total number of accidents continues. Over the last 10 years total reportable motor vehicle accidents dropped by 14%. Fatal and Property Damage accidents with slight fluctuations, have decreased over the time period. However, Personal Injury accidents have increased by 11.5% since 1984. On closer examination of the breakdown of injury severity, the increase is attributable to a greater number of minimal injury reports.

Fatal accidents have certain characteristics which deviate from the patterns of all accidents. Whereas single vehicle accidents account for 27% of all accidents, almost one half of fatal accidents involved only a single vehicle.

Although generally motor vehicle accidents occur in the winter months (37%), fatal crashes occur primarily in the summer months (34%).

Fatal accidents again contrast with total accidents in terms of time of day. The largest proportion of all accidents occur in the afternoon, but fatal accidents most often occur at night.

Similarly, only 28% of all accidents occurred in darkness but 46% of fatal accidents occurred in this light condition.



3a. types of accidents

Table 3.1 Class of Accident 1977-1986

Year	Class of Accident			Total
	Fatal	Personal	Property	
1977	1,213	63,787	153,567	218,567
1978	1,263	62,664	122,436	186,363
1979	1,316	67,201	128,679	197,196
1980	1,296	67,391	127,814	196,501
1981	1,234	67,292	129,846	198,372
1982	997	62,956	123,990	187,943
1983	1,042	62,735	118,222	181,999
1984	1,011	66,101	127,670	194,782
1985	1,036	73,840	114,874	189,750
1986	951	73,703	112,632	187,286

Since 1977, total reportable motor vehicle accidents have declined by 14% and property damage accidents by 27%. The latter drop may be partially attributable to changes in reporting criterion (See Glossary). The number of personal injury accidents has remained at a level comparable to 1985. As noted in last year's annual report, this level is sustained primarily by reports of minimal injury.

Table 3.2 Accident Rate Per One Million Kilometres Travelled 1977-1986

Year	Accident Rate
1977	3.3
1978	2.7
1979	2.7
1980	2.7
1981	2.8
1982	2.9
1983	2.8
1984	2.9
1985	2.8
1986	2.7

Table 3.3**Accident Involving Motor Vehicle
by Class of Accident 1986**

Accident Involving Motor Vehicle and Moveable Objects:	Class of Accident			Total
	Fatal	Personal	Property Damage	
Other Motor Vehicle/s	437	46,345	84,845	131,627
Pedestrian	142	5,201	2	5,345
Cyclist	31	4,555	43	4,629
Railway Train	14	73	101	188
Street Car	—	86	219	305
Farm Tractor	2	64	137	203
Animal	4	355	3,072	3,431
Other Moveable Object	1	138	174	313
Sub-total	631	56,817	88,593	146,041
Fixed Objects				
Restraining Barrier	21	1,550	4,257	5,828
Rigid Pole	22	1,733	2,739	4,494
Breakaway Pole	5	450	955	1,410
Tree	41	1,136	1,366	2,543
Post	22	622	1,535	2,179
Fence	3	379	881	1,263
Culvert	13	405	253	671
Bridge Support	10	186	277	473
Rock Face	13	349	402	764
Snow Bank or Drift	2	367	748	1,117
Ditch	93	4,294	4,164	8,551
Curb	14	1,048	1,337	2,399
Crash Cushion	—	34	60	94
Building or Wall	3	178	319	500
Other Fixed Object	23	1,137	1,853	3,013
Sub-total	285	13,868	21,146	35,299
Other Circumstances:				
Fire/Explosion	2	31	603	636
Submersion	—	7	7	14
Rollover	29	1,577	891	2,497
Other Non-Collision Event	4	1,403	1,392	2,799
Sub-total	35	3,018	2,893	5,946
Total	951	73,703	112,632	187,286

Collisions with moveable objects, particularly other motor vehicles, account for the majority of all accidents (78%).

Accidents involving fixed objects are the next most frequent and account for 19% of all accidents. Fatal accidents with 66% involving moveable objects and 30% involving fixed objects, are somewhat different.

Table 3.4**Initial Impact Type
by Class of Accident 1986**

Initial Impact Type	Class of Accident			Total
	Fatal	Personal	Property Damage	
Rear End	53	20,532	22,249	42,834
Angle	147	14,788	26,106	41,041
Turning Movement	47	8,569	15,158	23,774
Side-Swipe	22	3,522	14,459	18,003
Approaching	209	3,627	5,356	9,192
Single Motor Vehicle	472	22,326	26,770	49,568
Other	1	339	2,534	2,874
Total	951	73,703	112,632	187,286

Overall, accidents are quite evenly split between the three impact types "rear end", "angle" and "single motor vehicle" (23%, 22% and 27% respectively). However, almost half the fatal accidents (49.6%) involved single motor vehicles.

3b. time and environment

Table 3.5 Month of Occurrence by Class of Accident 1986

Month of Occurrence	Class of Accident						Total	%
	Fatal		Personal Injury		Property Damage			
	Fatal	%	Injury	%	Damage	%		
January	58	6.1	5,427	7.4	10,978	9.7	16,463	8.8
February	40	4.2	4,570	6.2	9,405	8.4	14,015	7.5
March	49	5.1	4,731	6.4	8,594	7.6	13,374	7.1
April	68	7.2	4,884	6.6	6,900	6.1	11,852	6.3
May	90	9.5	6,340	8.6	7,939	7.0	14,369	7.7
June	108	11.4	7,072	9.6	8,526	7.6	15,706	8.4
July	92	9.7	7,095	9.6	8,438	7.5	15,625	8.3
August	120	12.6	7,441	10.1	8,716	7.7	16,277	8.7
September	75	7.9	6,968	9.5	9,336	8.3	16,379	8.7
October	90	9.5	6,847	9.3	10,334	9.2	17,271	9.2
November	86	9.0	6,820	9.2	12,444	11.0	19,350	10.3
December	75	7.9	5,508	7.5	11,022	9.8	16,605	8.9
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0

Although motor vehicle accidents occur most frequently during October, November, December and January (37%), fatal accidents occur most frequently during the summer months of June, July and August (34%).

Figure 3.1 Accidents by Season of Occurrence and Class of Accident 1986

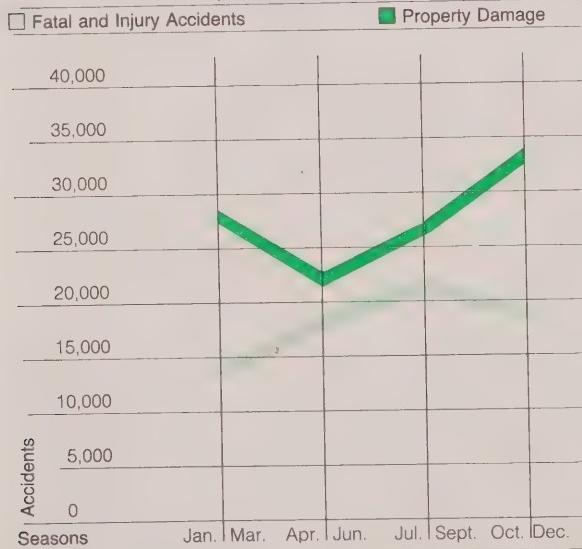


Table 3.6 Day of Week by Class of Accident 1986

Day of Occurrence	Class of Accident						Total	%
	Fatal		Personal		Property			
	Fatal	%	Injury	%	Damage	%		
Sunday	171	18.0	8,299	11.3	11,472	10.2	19,942	10.6
Monday	97	10.2	9,648	13.1	14,788	13.1	24,533	13.1
Tuesday	103	10.8	10,046	13.6	15,911	14.1	26,060	13.9
Wednesday	103	10.8	9,769	13.3	15,178	13.5	25,050	13.4
Thursday	124	13.0	11,200	15.2	18,107	16.1	29,431	15.7
Friday	173	18.2	13,110	17.8	20,380	18.1	33,663	18.0
Saturday	180	19.0	11,631	15.8	16,796	14.9	28,607	15.3
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0

Any accident is most likely to occur on a Friday but fatal accidents occur with almost equal frequency on Friday, Saturday and Sunday.

Table 3.7 Hour of Occurrence by Class of Accident 1986

Hour of Occurrence A.M.	Class of Accident						Total	%
	Fatal		Personal		Property			
	Fatal	%	Injury	%	Damage	%		
12 to 1 a.m.	36	3.8	1,674	2.3	2,185	1.9	3,895	2.1
1 to 2 a.m.	74	7.8	2,103	2.9	2,776	2.5	4,953	2.6
2 to 3 a.m.	47	4.9	1,281	1.7	1,835	1.6	3,163	1.7
3 to 4 a.m.	20	2.1	736	1.0	1,070	0.9	1,826	1.0
4 to 5 a.m.	12	1.3	497	0.7	708	0.6	1,217	0.6
5 to 6 a.m.	11	1.2	511	0.7	846	0.8	1,368	0.7
Sub-total	200	21.0	6,802	9.2	9,420	8.4	16,422	8.8
6 to 7 a.m.	28	2.9	1,405	1.9	2,320	2.1	3,753	2.0
7 to 8 a.m.	21	2.2	2,820	3.8	4,753	4.2	7,594	4.1
8 to 9 a.m.	33	3.5	3,973	5.4	6,697	5.9	10,703	5.7
9 to 10 a.m.	31	3.3	2,538	3.4	4,693	4.2	7,262	3.9
10 to 11 a.m.	20	2.1	2,837	3.8	5,109	4.5	7,966	4.2
11 to 12 a.m.	42	4.4	3,561	4.8	6,004	5.3	9,607	5.1
Sub-total	175	18.4	17,134	23.2	29,576	26.2	46,885	25.0

Hour of**Occurrence P.M.**

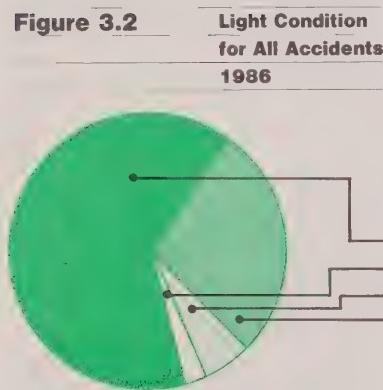
Hour of Occurrence P.M.	Class of Accident						Total	%
	Fatal		Personal		Property			
	Fatal	%	Injury	%	Damage	%		
12 to 1 p.m.	32	3.4	4,270	5.8	6,586	5.8	10,888	5.8
1 to 2 p.m.	43	4.5	4,021	5.5	6,474	5.7	10,538	5.6
2 to 3 p.m.	39	4.1	4,423	6.0	6,861	6.1	11,323	6.0
3 to 4 p.m.	43	4.5	5,694	7.7	8,443	7.5	14,180	7.6
4 to 5 p.m.	56	5.9	6,680	9.1	9,420	8.4	16,156	8.6
5 to 6 p.m.	57	6.0	6,094	8.3	8,396	7.5	14,547	7.8
Sub-total	270	28.4	31,182	42.3	46,180	41.0	77,632	41.5
6 to 7 p.m.	58	6.1	4,478	6.1	6,208	5.5	10,744	5.7
7 to 8 p.m.	57	6.0	3,895	5.3	5,311	4.7	9,263	4.9
8 to 9 p.m.	46	4.8	3,011	4.1	4,196	3.7	7,253	3.9
9 to 10 p.m.	54	5.7	2,625	3.6	3,741	3.3	6,420	3.4
10 to 11 p.m.	39	4.1	2,243	3.0	3,310	2.9	5,592	3.0
11 to 12 p.m.	44	4.6	2,093	2.8	3,098	2.8	5,235	2.8
Sub-total	298	31.3	18,345	24.9	25,864	22.9	44,507	23.7
Unknown	8	0.8	240	0.3	1,592	1.4	1,840	1.0
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0

The largest proportion of all accidents occur between twelve noon and six p.m. In contrast, fatal accidents occur most frequently from six p.m. to twelve midnight.

Table 3.8 Statutory Holidays, Holiday Weekends — Fatal Accidents, Persons Killed and Persons Injured 1986

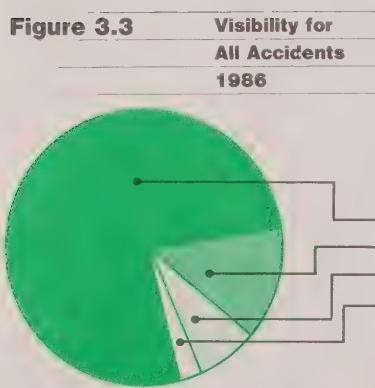
Statutory Holiday	Number of Fatal Accidents	Drivers		Passengers		Others		Total	
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Easter Weekend	11	6	6	6	10	1	—	13	16
Victoria Day	10	4	7	6	5	2	—	12	12
Canada Day	4	2	1	1	1	1	—	4	2
Civic Holiday (Simcoe Day)	7	6	2	2	2	2	—	10	4
Labour Day	13	7	1	3	4	5	—	15	5
Thanksgiving Day	11	5	5	3	9	4	1	12	15
Christmas/Boxing Day	3	3	1	—	1	—	—	3	2

On average 3 day weekend periods, (Friday six p.m. to Monday midnight) for the summer, winter seasons and the whole year, 17.1, 10.7 and 13.9 people were killed, respectively.

Figure 3.2**Table 3.9** Light Condition by Class of Accident 1986

Light Condition	Class of Accident						Total	%		
	Fatal		Personal Injury		Property Damage					
	Fatal	%	Injury	%	Damage	%				
Daylight	463	48.7	49,392	67.0	74,459	66.1	124,314	66.4		
Dawn	19	2.0	1,124	1.5	1,827	1.6	2,970	1.6		
Dusk	27	2.8	2,932	4.0	4,598	4.1	7,557	4.0		
Darkness	442	46.5	20,255	27.5	31,748	28.2	52,445	28.8		
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0		

Although only 28% of all accidents occurred in darkness, 46% of fatal accidents occurred in this condition.

Figure 3.3**Table 3.10** Visibility by Class of Accident 1986

Visibility	Class of Accident						Total	%		
	Fatal		Personal Injury		Property Damage					
	Fatal	%	Injury	%	Damage	%				
Clear	757	79.6	57,297	77.8	84,593	75.1	142,647	76.2		
Rain	97	10.2	10,263	13.9	15,253	13.6	25,613	13.7		
Snow or Sleet	63	6.6	4,444	6.0	10,377	9.2	14,884	7.9		
Fog, Mist, Smoke or Dust	34	3.6	1,699	2.3	2,409	2.1	4,142	2.2		
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0		

3c.

**the
accident
location**

Table 3.11 Road Jurisdiction by Class of Accident 1986

Road Jurisdiction	Class of Accident			Total
	Fatal	Personal	Property Damage	
Municipal (Excl. Twp. Rd.)	356	47,289	73,154	120,799
Provincial Highway	380	14,947	22,675	38,002
Township	88	3,867	6,137	10,092
County or District	98	2,900	4,029	7,027
Regional Municipality	18	4,291	5,879	10,185
Other	11	409	761	1,181
Total	951	73,703	112,632	187,286

Table 3.12 Road Jurisdiction for All Accidents 1977-1986

Road Jurisdiction	Year										Total
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	
Municipal	122,766	128,719	136,091	135,579	135,346	126,876	119,230	136,456	128,809	120,799	1,295,671
Provincial	39,039	34,301	36,212	34,780	35,584	33,246	32,667	36,110	38,976	38,002	358,917
Township	11,597	10,834	11,905	12,909	11,573	11,476	11,330	11,628	10,562	10,092	113,906
County or District	8,330	7,200	7,593	6,605	6,475	5,669	5,258	6,248	7,002	7,027	67,407
Regional Municipality	30,817	4,620	4,742	5,562	8,220	9,722	12,592	3,393	3,166	10,185	93,019
Other	1,018	689	653	1,066	1,174	954	922	947	1,235	1,181	9,839
Total	218,567	186,363	197,196	196,501	198,372	187,943	181,999	194,782	189,750	187,286	1,938,759

Figure 3.4 **Road Location
for All Accidents
1986**

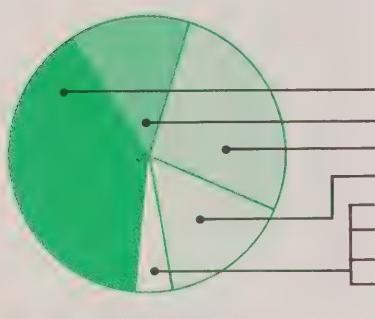


Table 3.13 **Road Location
by Class
of Accident 1986**

Road Location	Class of Accident						Total	%
	Fatal		Personal		Property			
	%	Injury	%	Damage	%			
Non-intersection	578	60.8	27,810	37.7	44,664	39.7	73,052	39.0
Intersection Related	57	6.0	13,146	17.8	17,718	15.7	30,921	16.5
In Intersection	191	20.1	21,762	29.5	28,675	25.5	50,628	27.0
At/Near Private Drive	87	9.1	9,828	13.3	19,672	17.5	29,587	15.8
At Railway Crossing	17	1.8	237	0.3	353	0.3	607	0.3
Underpass or Tunnel	2	0.2	167	0.2	293	0.2	462	0.2
Overpass or Bridge	19	2.0	748	1.0	1,244	1.1	2,011	1.1
Other	—	—	5	—	13	—	18	—
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0

Although a greater number of all accidents occur at non-intersection locations compared to intersections (39% vs 27%) this difference is particularly pronounced for fatal accidents (60.8% non-intersection vs 20.1% intersection).

Figure 3.5 **Road Surface
Condition for
All Accidents
1986**

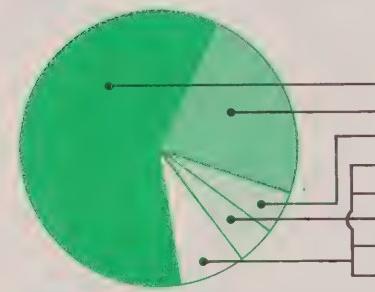


Table 3.14 **Road Surface
Condition by Class
of Accident 1986**

Road Surface Condition	Class of Accident						Total	%
	Fatal		Personal		Property			
	%	Injury	%	Damage	%			
Dry	646	67.9	46,146	62.6	62,828	55.8	109,620	58.5
Wet	196	20.6	18,944	25.7	29,067	25.8	48,207	25.7
Loose Snow	24	2.5	2,325	3.2	5,894	5.2	8,243	4.4
Slush	27	2.8	1,658	2.2	3,878	3.4	5,563	3.0
Packed Snow	16	1.7	1,298	1.8	3,856	3.4	5,170	2.8
Ice	33	3.5	2,719	3.7	6,320	5.6	9,072	4.8
Mud	—	—	27	—	95	0.1	122	0.1
Loose Sand or Gravel	9	0.9	586	0.8	694	0.6	1,289	0.7
Total	951	100.0	73,703	100.0	112,632	100.0	187,286	100.0

4

place of accident in ontario



Table 4.1

**Place of Accident — Estimated Population,
Class of Accident,
Persons Killed, Persons Injured and
Vehicle Registration 1986**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total	Fatal	Personal Injury	Property Damage	Killed	Injured	
		Accidents						
Ontario	8,883,298	187,286	951	73,703	112,632	1,102	108,839	5,421,220
Algoma	123,853	2,522	22	953	1,547	27	1,415	79,322
Blind River, t	3,539	31	—	20	11	—	24	
Elliot Lake, t	M	18,332	133	1	58	74	1	73
Michipicoten, twp	M	4,503	2	—	1	1	—	4
Sault Ste. Marie, c	M	81,718	1,477	6	538	933	6	772
Thessalon, t		1,532	11	—	3	8	—	3
Other Areas		14,229	868	15	333	520	20	539
Brant	101,212	2,211	12	847	1,352	16	1,238	62,134
Brantford, c	M	75,080	1,317	4	464	849	4	638
Brantford, twp		6,623	1	—	1	—	—	2
Burford, twp		5,297	1	—	—	1	—	—
Paris, t	M	7,723	99	—	38	61	—	55
Other Areas		6,489	793	8	344	441	12	543
Bruce	58,092	852	12	311	529	15	524	40,190
Amabel, twp		2,952	1	—	—	1	—	—
Brant, twp		3,376	1	—	—	1	—	—
Bruce, twp		1,637	1	—	—	1	—	—
Chesley, t	M	1,845	11	—	5	6	—	6
Kincardine, t	M	5,833	42	—	14	28	—	22
Kincardine, twp		2,990	1	—	—	1	—	—
Port Elgin, t	M	6,005	60	—	29	31	—	39
Saugeen, twp		1,600	1	—	1	—	—	3
Southampton, t	M	2,714	29	1	9	19	1	20
Walkerton, t	M	4,667	65	—	13	52	—	16
Wiarton, t	M	2,119	19	—	9	10	—	13
Other Areas		22,354	616	11	229	376	14	405
Cochrane	86,609	1,518	6	549	963	9	844	54,212
Cochrane, t		4,497	44	—	19	25	—	22
Hearst, t		5,360	44	—	17	27	—	21
Iroquois Falls, t		6,230	52	—	18	34	—	25
Kapuskasing, t	M	11,508	83	—	23	60	—	36
Smooth Rock Falls, t		2,251	29	1	9	19	1	20
Timmins, c	M	45,743	655	—	216	439	—	297
Other Areas		11,020	611	5	247	359	8	423
Dufferin	32,370	871	8	339	524	10	561	22,012
Amaranth, twp		2,731	1	—	—	1	—	—
Orangeville, t	M	14,408	231	2	79	150	2	123
Shelburne, t	M	3,004	51	—	15	36	—	27
Other Areas		12,227	588	6	245	337	8	411

Municipal/Regional Municipal Roads

Legend	t	town	Other Areas — Include	M	Municipal police force
	c	city	Provincial Highways		
	vl	village	and jurisdictions with		
	twp	township	less than 1,500 population		

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Durham	M	314,238	6,450	33	2,702	3,715	40	4,062
Ajax, t		33,763	376	—	130	246	—	176
Brock, twp		9,806	57	1	25	31	1	38
Newcastle, t		32,712	454	3	200	251	3	324
Oshawa, c		121,669	2,317	6	988	1,323	7	1,467
Pickering, t		45,758	524	3	197	324	6	289
Scugog, t		14,645	74	5	31	38	5	54
Uxbridge, twp		11,644	64	—	30	34	—	34
Whitby, t		44,241	672	2	332	338	2	487
Other Areas		—	1,912	13	769	1,130	16	1,193
Elgin		69,284	1,119	11	436	672	11	686
Aldborough, twp		2,586	1	—	—	1	—	—
Aylmer, t	M	5,232	53	1	13	39	1	21
Port Stanley, vl		1,914	12	—	7	5	—	10
St. Thomas, c	M	28,218	424	2	163	259	2	243
Southwold, twp		4,342	1	—	1	—	—	1
Yarmouth, twp		2,565	1	—	1	—	—	1
Other Areas		24,427	627	8	251	344	8	410
Essex		315,743	6,973	37	2,976	3,960	41	4,435
Amherstburg, t	M	8,474	92	—	28	64	—	37
Anderdon, twp	M	4,751	2	—	—	2	—	—
Belle River, t		3,676	24	—	8	16	—	10
Colchester South, twp	M	4,895	2	—	1	1	—	3
Essex, t	M	5,978	59	—	22	37	—	27
Harrow, t		2,302	24	—	8	16	—	11
Kingsville, t	M	5,257	39	—	13	26	—	17
Leamington, t	M	12,655	324	1	99	224	1	136
Maidstone, twp		8,270	2	—	—	2	—	—
Mersea, twp	M	8,627	5	—	2	3	—	2
Sandwich South, twp		4,862	1	—	—	1	—	—
Sandwich West, twp	M	13,744	8	—	2	6	—	2
St. Clair Beach, vl	M	3,026	17	1	7	9	1	12
Tecumseh, t		7,208	105	—	41	64	—	56
Tilbury North, twp		3,099	1	—	—	1	—	—
Windsor, c	M	195,028	4,570	14	1,891	2,665	14	2,784
Other Areas		23,891	1,698	21	854	847	25	1,338
Frontenac		117,878	2,501	18	914	1,569	18	1,309
Kingston, c	M	60,408	1,210	6	412	792	6	569
Kingston, twp		29,561	1	—	—	1	—	—
Pittsburgh, twp		9,567	1	—	1	—	—	1
Portland, twp		4,250	1	—	—	1	—	—
Other Areas		14,092	1,288	12	501	775	12	739
Grey		74,279	1,240	13	470	757	16	727
Bentinck, twp		3,194	1	—	1	—	—	1
Derby, twp		2,469	1	—	1	—	—	1
Durham, t	M	2,458	19	—	5	14	—	6
Hanover, t	M	6,284	76	—	25	51	—	27
Meaford, t	M	4,358	38	—	10	28	—	12
Osprey, twp		1,775	1	—	—	1	—	—

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Owen Sound, c	M	19,698	248	1	83	164	1	127
Other Areas		34,043	856	12	345	499	15	827
Haldimand-Norfolk	M	88,400	1,629	16	606	1,007	19	919
Delhi, twp		14,796	97	1	36	60	1	59
Dunville, t		11,289	147	1	55	91	1	81
Haldimand, t		17,296	91	3	30	58	4	58
Nanticoke, c		20,071	250	3	91	156	3	131
Norfolk, twp		10,752	60	—	25	35	—	37
Simcoe, t		14,196	284	1	92	191	1	140
Other Areas		—	700	7	277	416	9	413
Haliburton		11,541	343	3	139	201	4	215
Anson, Hindon & Minden, twp		2,633	4	—	—	4	—	—
Dysart, et al, twp		3,742	5	—	1	4	—	1
Other Areas		5,166	334	3	138	193	4	214
Halton	M	264,498	5,290	28	2,072	3,190	33	3,037
Burlington, c		115,593	1,528	5	636	887	5	887
Halton Hills, t		34,703	527	3	195	329	4	278
Milton, t		30,988	522	2	213	307	3	317
Oakville, t		83,214	1,207	6	443	758	6	620
Other Areas		—	1,506	12	585	909	15	935
Hamilton-Wentworth	M	421,264	8,826	36	3,866	4,924	41	5,625
Ancaster, t		16,542	173	1	93	79	1	146
Dundas, t		20,081	285	—	113	172	—	158
Flamborough, twp		25,541	243	5	104	134	5	177
Glanbrook, twp		9,446	35	—	18	17	—	26
Hamilton, c		307,690	5,918	12	2,686	3,220	12	3,753
Stoney Creek, t		41,964	491	2	194	295	2	290
Other Areas		—	1,681	16	658	1,007	21	1,075
Hastings		107,863	2,157	20	779	1,358	24	1,210
Bancroft, vl		2,366	30	—	7	23	—	14
Belleville, c	M	36,720	716	2	224	490	2	297
Deseronto, t	M	1,849	13	—	6	7	—	6
Frankford, vl		1,922	11	—	2	9	—	7
Sidney, twp		15,951	1	—	1	—	—	1
Stirling, vl	M	1,795	24	1	7	16	1	7
Trenton, c	M	15,068	288	3	97	188	3	132
Tweed, vl	M	1,634	23	—	5	18	—	11
Other Areas		30,558	1,051	14	430	607	18	729
Huron		55,553	887	12	321	554	15	497
Clinton, t	M	3,119	46	—	12	34	—	18
Exeter, t	M	3,706	69	1	26	42	1	32
Goderich, t	M	7,282	113	—	36	77	—	54
Goderich, twp		2,212	1	—	1	—	—	1
Hay, twp		1,905	2	—	1	1	—	1
Seaforth, t	M	2,153	19	—	4	15	—	7
Turnberry, twp		1,524	1	—	—	1	—	—
Wingham, t	M	2,941	37	—	11	26	—	14
Other Areas		30,711	599	11	230	358	14	370

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Kenora	36,322	1,158	12	365	781	15	554	31,976
Dryden, t	M	6,431	101	—	25	76	—	30
Ear Falls, twp		1,800	1	—	—	1	—	—
Ignace, twp		2,345	5	—	3	2	—	4
Keewatin, t		1,919	20	—	6	14	—	8
Kenora, t	M	9,574	167	—	52	115	—	69
Red Lake, twp		2,078	7	—	1	6	—	1
Sioux Lookout, t		2,996	54	—	14	40	—	20
Other Areas		9,179	803	12	264	527	15	422
Kent	105,476	2,051	15	824	1,212	16	1,176	73,291
Blenheim, t		4,175	39	—	10	29	—	16
Camden, twp		2,291	1	—	1	—	—	1
Chatham, c	M	41,586	742	—	305	437	—	404
Dover, twp		4,013	1	—	—	1	—	—
Dresden, t	M	2,568	32	—	10	22	—	13
Harwich, twp		6,134	2	—	1	1	—	1
Raleigh, twp		5,702	1	1	—	—	1	5
Ridgetown, t		3,152	26	—	10	16	—	14
Tilbury, t	M	4,154	79	—	21	58	—	35
Wallaceburg, t	M	11,373	214	—	83	131	—	106
Wheatley, vl		1,528	9	—	4	5	—	4
Other Areas		18,800	905	14	371	512	15	573
Lambton	122,091	2,262	17	870	1,375	19	1,299	79,148
Bosanquet, twp		4,366	1	—	1	—	—	1
Brooke, twp		1,995	1	—	—	1	—	—
Forest, t		2,614	18	—	6	12	—	8
Petrolia, t	M	4,284	43	1	8	34	1	11
Point Edward, vl	M	2,313	47	1	19	27	1	28
Sarnia, c	M	49,091	1,091	3	415	673	3	622
Sarnia, twp	M	23,293	3	—	—	3	—	—
Wyoming, vl		1,791	12	—	3	9	—	4
Other Areas		32,344	1,046	12	426	616	14	625
Lanark	48,400	1,021	8	339	674	11	502	32,046
Almonte, t		4,028	30	—	10	20	—	14
Carleton Place, t	M	6,360	105	1	33	71	1	51
Pakenham, twp		1,551	1	—	—	1	—	—
Perth, t	M	5,699	115	1	47	67	1	66
Smiths Falls, t	M	9,118	225	1	65	159	1	84
Other Areas		21,644	545	5	184	356	8	287
Leeds & Grenville	83,176	1,765	17	620	1,128	22	943	53,936
Brockville, c	M	20,760	481	1	132	348	1	188
Cardinal, vl	M	1,651	2	—	1	1	—	1
Gananoque, t	M	4,844	52	—	15	37	—	18
Kemptville, t	M	2,496	9	—	1	8	—	1
Oxford-on-Rideau, twp		4,420	1	—	1	—	—	1
Prescott, t	M	4,584	72	—	19	53	—	32
R. Leeds & Lansdowne, twp		4,289	1	—	—	1	—	—
Other Areas		40,132	1,147	16	451	680	21	702

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Lennox & Addington	33,094	648	7	249	392	10	388	18,983
Camden East, twp	3,818	4	—	1	3	—	3	
Napanee, t M	4,452	97	1	41	55	2	61	
Richmond, twp	3,531	1	—	—	1	—	—	
Other Areas	21,293	546	6	207	333	8	324	
Manitoulin	6,779	209	2	70	137	2	101	6,353
Middlesex	338,278	6,869	35	2,915	3,919	38	4,322	197,807
Delaware, twp	2,107	1	—	1	—	—	3	
Glencoe, vil	1,713	16	—	4	12	—	4	
London, c M	276,000	5,134	11	2,193	2,930	12	3,109	
London, twp	5,816	1	—	—	1	—	—	
Lucan, vil	1,671	10	—	3	7	—	4	
Strathroy, t M	9,051	103	—	46	57	—	64	
Westminster, twp	6,159	3	—	1	2	—	1	
Other Areas	35,761	1,601	24	667	910	26	1,137	
Muskoka	37,941	1,155	19	428	708	24	635	27,822
Bracebridge, t	9,322	113	—	39	74	—	47	
Georgian Bay, twp	1,857	—	—	—	—	—	—	
Gravenhurst, t	8,421	90	2	39	49	2	50	
Huntsville, t	11,438	99	—	30	69	—	37	
Lake of Bays, twp	2,141	1	—	1	—	—	4	
Muskoka Lakes, twp	4,762	1	—	—	1	—	—	
Other Areas	—	851	17	319	515	22	497	
Niagara	M 369,312	8,347	36	3,073	5,238	43	4,466	230,050
Fort Erie, t	24,073	475	3	183	289	4	267	
Grimsby, t	16,719	212	1	82	129	1	129	
Lincoln, t	14,404	201	3	76	122	5	111	
Niagara Falls, c	71,088	1,543	5	549	989	5	802	
Niagara-on-the-Lake, t	12,359	170	1	58	111	1	108	
Pelham, t	11,835	143	1	55	87	1	93	
Port Colborne, c	18,653	266	1	91	174	1	115	
St. Catharines, c	123,014	2,373	6	861	1,506	6	1,152	
Thorold, c	16,086	203	2	66	135	2	93	
Wainfleet, twp	5,983	28	—	8	20	—	25	
Welland, c	45,173	898	5	345	548	5	461	
West Lincoln, twp	9,925	53	1	19	33	2	30	
Other Areas	—	1,782	7	680	1,095	10	1,080	
Nipissing	73,733	1,504	6	610	888	6	906	44,985
Bonfield, twp	1,738	1	—	1	—	—	4	
Caldwell, twp	1,555	2	—	2	—	—	3	
Mattawa, t	2,571	1	—	1	—	—	2	
North Bay, c M	50,437	692	1	262	429	1	352	
Sturgeon Falls, t M	5,836	78	—	37	41	—	45	
Other Areas	11,596	792	5	307	418	5	500	
Northumberland	66,568	1,435	22	594	819	29	956	32,825
Brighton, t	3,456	32	—	9	23	—	12	
Campbellford, t	3,402	36	2	11	23	3	13	
Cobourg, t M	13,064	231	1	85	145	1	137	
Colborne, vil	1,879	20	—	9	11	—	12	

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Cramahe, twp	2,486	2	—	—	2	—	—	
Haldimand, twp	3,484	1	—	—	1	—	—	
Murray, twp	5,879	3	—	—	3	—	—	
Port Hope, t	M 10,462	76	1	34	41	1	43	
Other Areas	22,456	1,034	18	446	570	24	739	
Ottawa-Carleton	599,688	13,219	51	4,175	8,993	54	5,742	325,236
Cumberland, twp	24,707	161	4	69	88	4	96	
Gloucester, c	M 86,553	781	3	295	483	3	421	
Goulbourn, twp	11,824	110	—	37	73	—	58	
Kanata, c	26,133	331	1	110	220	1	152	
Nepean, c	M 92,751	1,230	5	415	810	5	591	
Osgoode, twp	10,850	139	3	49	87	3	72	
Ottawa, c	M 304,448	7,557	18	2,237	5,302	18	2,962	
Rideau, twp	10,017	110	4	37	69	4	49	
Rockcliffe Park, vl	2,323	15	—	3	12	—	4	
Vanier, c	18,803	356	—	107	249	—	141	
West Carleton, twp	11,279	53	—	21	32	—	34	
Other Areas	—	1,729	11	568	1,150	11	843	
Oxford	84,757	1,805	14	684	1,107	18	1,044	56,504
East Zorra-Tavistock, twp	M 7,082	10	—	3	7	—	3	
Ingersoll, t	M 8,469	131	—	40	91	—	57	
Norwich, twp	M 9,507	24	—	10	14	—	13	
South-West Oxford, twp	8,270	1	—	—	1	—	—	
Tillsonburg, t	M 10,563	150	—	61	89	—	85	
Woodstock, c	M 26,183	553	—	204	349	—	278	
Zorra, twp	8,060	1	—	1	—	—	1	
Blandford-Blenheim, twp	6,623	1	—	—	1	—	—	
Other Areas	—	934	14	365	555	18	607	
Parry Sound	29,498	948	16	326	606	19	545	24,099
Himsworth North, twp	2,662	2	—	—	2	—	—	
McDougall, twp	1,703	1	—	1	—	—	1	
Parry Sound, t	M 5,813	45	—	13	32	—	19	
Other Areas	19,320	900	16	312	572	19	525	
Peel	M 565,871	11,541	41	4,563	6,937	47	6,913	369,872
Brampton, c	177,675	2,565	4	1,057	1,504	5	1,603	
Caledon, t	28,701	653	10	268	375	10	418	
Mississauga, c	359,495	5,834	15	2,234	3,585	18	3,229	
Other Areas	—	2,489	12	1,004	1,473	14	1,663	
Perth	66,333	1,135	13	383	739	15	567	41,595
Listowel, t	M 5,072	65	—	12	53	—	20	
Mitchell, t	M 2,947	47	—	14	33	—	20	
St. Marys, t	M 5,009	54	—	15	39	—	16	
Stratford, c	M 26,361	450	1	138	311	1	189	
Other Areas	26,944	519	12	204	303	14	322	
Peterborough	102,740	2,056	13	819	1,224	16	1,247	62,000
Cavan, twp	4,043	3	—	1	2	—	1	
Lakefield, vl	M 2,318	30	—	11	19	—	19	
Peterborough, c	M 61,330	1,059	2	421	636	2	583	
Other Areas	35,049	964	11	386	567	14	644	

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Prescott & Russell	56,553	1,005	7	368	630	7	537	49,287
Casselman, vl	1,844	18	1	3	14	1	5	
Hawkesbury, t	M	9,716	133	—	33	100	—	52
L'Orignal, vl		1,904	9	—	6	3	—	7
Rockland, t		4,689	52	—	17	35	—	21
Vankleek Hill, t		1,773	17	—	3	14	—	5
Other Areas		36,627	776	6	306	464	6	447
Prince Edward	22,228	369	5	132	232	5	199	14,954
Hallowell, twp		4,467	2	—	—	2	—	—
Hillier, twp		1,611	2	—	1	1	—	1
Picton, t	M	4,177	71	—	25	46	—	42
Other Areas		11,973	294	5	106	183	5	156
Rainy River	19,645	468	2	144	322	2	198	15,049
Atikokan, twp		4,442	1	—	1	—	—	2
Fort Francis, t	M	8,673	174	1	47	126	1	60
Other Areas		6,530	293	1	96	196	1	136
Renfrew	86,991	1,455	14	534	907	16	835	56,829
Arnprior, t	M	5,891	55	—	21	34	—	27
Deep River, t	M	4,614	8	—	5	3	—	7
Pembroke, c	M	13,966	238	1	78	159	1	113
Petawawa, vl		5,288	11	—	5	6	—	9
Renfrew, t	M	8,166	109	1	36	72	1	55
Ross, twp		1,716	1	—	—	1	—	—
Other Areas		47,350	1,034	12	389	632	14	624
Simcoe	231,711	5,485	37	1,950	3,498	39	2,961	143,851
Alliston, t	M	4,674	66	—	23	43	—	27
Barrie, c	M	47,409	995	1	319	675	1	455
Beeton, vl		2,105	21	—	6	15	—	6
Bradford, t	M	8,056	126	—	35	91	—	49
Collingwood, t	M	12,035	211	—	82	129	—	118
Essa, twp		13,860	6	—	4	2	—	5
Innisfil, twp		13,128	3	—	1	2	—	1
Medonte, twp		4,323	1	—	—	1	—	—
Midland, t	M	12,049	195	2	72	121	2	105
Nottawasaga, twp		4,722	1	—	—	1	—	—
Orillia, c	M	23,786	341	2	138	201	2	198
Penetanguishene, t	M	5,449	76	—	22	54	—	27
Port McNicoll, vl		1,926	9	—	6	3	—	8
Stayner, t		2,730	23	—	8	15	—	9
Sunnidale, twp		2,309	1	—	—	1	—	—
Tay, twp		5,995	1	—	—	1	—	—
Tecumseh, twp		6,728	1	—	—	1	—	—
Tiny, twp		7,245	4	—	3	1	—	4
Tottenham, vl		2,987	29	1	4	24	1	5
Vespra, twp		5,762	1	—	—	1	—	—
Wasaga Beach, t		4,588	103	1	48	54	1	67
West Gwillimbury, twp		4,205	1	—	1	—	—	1
Other Areas		35,640	3,270	30	1,178	2,062	32	1,876

Table 4.1 **Continued**

Location	Estimated Population (1985)	Class of Accident				Persons		Vehicle Registrations
		Total Accidents	Fatal	Personal Injury	Property Damage	Killed	Injured	
Stormont, Dundas and Glengarry								
Glengarry	101,510	2,024	16	721	1,287	16	1,046	63,658
Alexandria, t	M	3,314	77	—	23	54	—	26
Cornwall, c	M	45,980	949	—	325	624	—	439
Cornwall, twp		5,384	3	—	2	1	—	2
Finch, twp		2,320	1	—	1	—	—	1
Matilda, twp		3,161	1	—	1	—	—	1
Morrisburg, vi		2,306	23	—	6	17	—	7
Winchester, vi		2,055	14	—	4	10	—	4
Winchester, twp		3,089	11	—	—	11	—	—
Other Areas		33,901	945	16	359	570	16	566
Sudbury District	18,208	817	16	317	484	18	484	103,906
Espanola, t	M	5,535	37	—	16	21	—	23
Other Areas		12,673	780	16	301	463	18	461
Sudbury Regional Municipality								
Capreol, t	M	154,387	2,452	12	1,032	1,408	15	1,534
Nickel Centre, t		3,722	24	—	9	15	—	13
Onaping Falls, t		11,548	70	—	31	39	—	43
Rayside-Balfour, t		5,614	27	—	13	14	—	22
Sudbury, c		14,183	70	2	34	34	2	47
Valley East, t		90,453	1,857	5	758	1,094	7	1,106
Walden, t		19,326	182	2	98	82	3	159
Other Areas		9,541	60	—	21	39	—	25
—		—	162	3	68	91	3	119
Thunder Bay	143,908	4,115	26	1,276	2,813	34	1,852	100,817
Geraldton, t		2,821	20	—	4	16	—	6
Longlac, t		2,258	16	—	1	15	—	2
Manitouwadge, twp		3,472	28	—	5	23	—	5
Marathon, twp	M	3,054	6	—	2	4	—	2
Nipigon, twp		2,392	14	—	4	10	—	7
Red Rock, twp	M	1,513	4	—	—	4	—	—
Schreiber, twp		1,891	15	—	3	12	—	4
Terrace Bay, twp	M	2,632	17	—	2	15	—	2
Thunder Bay, c	M	112,518	2,762	10	819	1,933	11	1,134
Other Areas		11,357	1,233	16	436	780	23	601
Timiskaming	37,312	811	11	273	527	13	402	23,625
Cobalt, t		1,622	15	—	3	12	—	3
Englehart, t		1,737	12	—	4	8	—	7
Haileybury, t		4,965	35	—	8	27	—	12
Kirkland Lake, t	M	11,854	138	2	34	102	2	51
New Liskeard, t	M	5,234	64	—	20	44	—	24
Other Areas		11,900	547	9	204	334	11	305
Toronto, Metropolitan	M	2,154,537	46,547	95	20,048	26,404	102	28,394
Etobicoke, c		298,490	4,470	12	1,989	2,469	12	2,821
Scarborough, c		461,957	7,008	24	3,088	3,896	28	4,588
Toronto, c		606,247	15,222	23	6,472	8,727	25	8,741
York, c		133,856	1,690	2	705	983	2	1,033
York E., borough		97,676	1,141	2	455	684	2	605
York N. c		556,308	9,816	11	4,521	5,284	12	6,692
Other Areas		—	7,200	21	2,818	4,361	21	3,914

Table 4.1 **Continued**

Vehicle Registration Location Not Recorded

27,683

5

the vehicle

The majority of vehicles involved in accidents in Ontario are passenger vehicles; approximately 75 percent.

Ninety-three percent of vehicles involved in accidents were reported as having no apparent defects. The remaining 7 percent of vehicles involved in accidents were reported as

defective or the condition of the vehicle was unknown. The most common types of defects reported were for tires and brakes.



5a.

vehicles in accidents

Table 5.1 Type of Vehicle by Class of Accident 1986

Class of Driver Licence Required	Type of Vehicle	Class of Accident			Total
		Fatal	Personal Injury	Property Damage	
Passenger vehicles	G Passenger car/station wagon	980	101,140	155,700	257,820
	G Taxi/limousine	1	245	350	596
	G Hearse	—	—	6	6
	G Dune buggy	—	7	2	9
	F Ambulance	—	59	71	130
	G Fire department vehicle	1	2	5	8
	G Police force vehicle	2	212	207	421
	G Public utility emergency vehicle	—	—	—	—
	G Other passenger vehicle	4	239	296	539
	Subtotal	988	101,904	156,637	259,529
	Percentage of all vehicles	61.9	74.2	75.0	74.6
	Percentage of all vehicles over 5 years	62.2	74.5	76.3	75.6
Passenger vehicles and trailers	G P.V. and house trailer	1	9	27	37
	G P.V. and boat trailer	—	33	78	111
	G P.V. and tent trailer	1	14	34	49
	G P.V. and utility trailer	—	7	35	42
	G P.V. and other trailer	3	101	276	380
	G Other P.V. and trailer	—	9	14	23
	Subtotal	5	173	464	642
	Percentage of all vehicles	0.3	0.1	0.2	0.2
	Percentage of all vehicles over 5 years	0.3	0.2	0.2	0.2
Trucks	D Truck with concrete mixer	1	29	63	93
	D Truck with stake or platform body	2	262	548	812
	D Truck with tank body	1	44	107	152
	D Truck with dump body	20	489	1,072	1,581
	G Tow truck	1	125	177	303
	D Tractor not pulling a trailer	5	86	173	264
	G Pick-up truck	157	9,967	18,893	29,017
	G Passenger van	34	1,878	3,215	5,127
	G Delivery van	57	4,726	8,596	13,379
	G Pick-up camper	1	5	10	16
	D Fire truck	—	20	36	56
	D Other truck	10	540	1,384	1,934
	G Other truck	7	715	1,529	2,251
	D Tow truck	—	5	23	28
	Subtotal	296	18,891	35,826	55,013
	Percentage of all vehicles	18.6	13.8	17.2	15.8
	Percentage of all vehicles over 5 years	16.7	12.6	15.4	14.4

Table 5.1 **Continued**

Class of Driver Licence Required	Type of Vehicle	Class of Accident			Total
		Fatal	Personal Injury	Property Damage	
Truck and trailer	G Pick-up and recreation trailer	—	4	12	16
	G Pick-up and recreation semi-trailer	1	—	5	6
	G Pick-up and other semi-trailer	6	215	484	705
	D Truck/trailer-dump	1	7	21	29
	D Truck/trailer-frame	—	—	2	2
	D Truck/trailer-tank	1	—	1	2
	D Truck/trailer-stake or platform body	—	3	18	21
	D Truck/trailer-van	—	3	4	7
	D Truck and pole trailer	—	1	1	2
	G Tow truck hauling a disabled vehicle	1	17	65	83
	D Other truck/trailer	—	13	34	47
	G Other truck/trailer	—	5	15	20
	A Other truck/trailer	—	52	136	188
	D Tow truck hauling a disabled vehicle	—	5	15	20
	Subtotal	10	325	813	1,148
	Percentage of all vehicles	0.6	0.2	0.4	0.3
	Percentage of all vehicles over 5 years	0.5	0.2	0.3	0.3
Tractor and semi- trailers	A Tractor/semi-trailer-dump	3	78	130	211
	A Tractor/semi-trailer-frame	1	29	53	83
	A Tractor/semi-trailer-tank	2	58	119	179
	A Tractor/semi-trailer-stake or platform	2	74	153	229
	A Tractor/semi-trailer-van	13	182	327	522
	A Tractor/semi-trailer-concrete mixer	—	1	3	4
	A Tractor/semi-trailer-float	5	87	194	286
	A Tractor/semi-trailer-car transport	—	5	13	18
	A Tractor/semi-trailer-other	73	1,379	3,212	4,664
	A Tractor/semi-trailer and pup-dump	1	4	20	25
	A Tractor/semi-trailer and pup-frame	—	1	1	2
	A Tractor/semi-trailer and pup-tank	—	4	9	13
	A Tractor/semi-trailer and pup-stake or platform	2	3	9	14
	A Tractor/semi-trailer and pup-van	1	4	8	13
	A Tractor/semi-trailer and pup-other	6	54	90	150
	A Tractor/semi-trailer and semi-trailer-tank	—	2	3	5
	A Tractor/semi-trailer/semi-trailer stake or platform	—	4	6	10
	A Tractor/semi-trailer and semi-trailer-van	—	—	1	1
	A Tractor/semi-trailer and semi-trailer-other	—	18	26	44
	Subtotal	109	1,987	4,377	6,473
	Percentage of all vehicles	6.8	1.4	2.1	1.9
	Percentage of all vehicles over 5 years	6.5	1.4	1.8	1.7
Bus	C Transit — intercity	—	53	105	158
	C Transit — urban	7	813	1,163	1,983
	F Coach — intercity	—	6	5	11
	F Coach — urban	—	40	72	112
	Subtotal	7	912	1,345	2,264
	Percentage of all vehicles	0.4	0.7	0.6	0.7
	Percentage of all vehicles over 5 years	0.5	0.8	0.7	0.7

Table 5.1 Type of Vehicle by Class of Accident 1986

Class of Driver Licence Required	Type of Vehicle	Class of Accident			Total
		Fatal	Personal Injury	Property Damage	
School vehicles	E School bus or school van — seating capacity 10-23	—	63	101	164
	B School bus — seating capacity 24 or over	4	260	547	811
	G School van — seating capacity under 10	—	4	8	12
	G Station wagon	—	1	3	4
	C Other bus	—	10	26	36
	Subtotal	4	338	685	1,027
	Percentage of all vehicles	0.3	0.2	0.3	0.3
	Percentage of all vehicles over 5 years	0.3	0.2	0.3	0.3
Other motor vehicles	G Motor home	2	36	89	127
	M Motorcycle	110	5,268	530	5,908
	G Moped	—	29	2	31
	Subtotal	112	5,333	621	6,066
	Percentage of all vehicles	7.0	3.9	0.3	1.8
	Percentage of all vehicles over 5 years	7.8	4.4	0.3	1.8
Non-motor vehicles	G Snowmobile	—	71	21	92
	Farm tractor	2	77	155	234
	Tractor or construction equipment	—	80	190	270
	Train	15	76	108	199
	Street car	—	104	252	356
	Bicycle	31	4,742	69	4,842
	Snow plow	1	2	9	12
	Go-cart	—	2	—	2
	Horse and buggy	—	6	3	9
	Other	—	12	13	25
	Subtotal	49	5,172	820	6,041
	Percentage of all vehicles	3.1	3.8	0.4	1.7
	Percentage of all vehicles over 5 years	4.2	3.9	0.4	1.7
	Unknown	16	2,387	7,392	9,795
	Percentage of all vehicles	1.0	1.7	3.5	2.8
	Percentage of all vehicles over 5 years	0.7	2.0	4.3	3.4
	Total	1,596	137,422	208,980	347,998

Table 5.2**Condition of Vehicle by Class of Accident 1986**

Condition of Vehicle	Class of Accident			Total
	Fatal	Personal Injury	Property Damage	
No Apparent Defect	1,361	129,319	193,181	323,861
Service Brakes Defective	8	713	639	1,360
Steering Defective	—	123	136	259
Tire Puncture or Blow Out	3	314	491	808
Tire Tread Insufficient	25	322	331	678
Headlamps Defective	4	111	61	176
Other Lamps or Reflectors Defective	6	152	292	450
Engine Controls Defective	4	186	372	562
Wheels or Suspension Defective	1	90	216	307
Vision Obscured	1	61	100	162
Trailer Hitch Defective	—	14	93	107
Other Defects	26	727	1,249	2,002
Unknown	157	5,290	11,819	17,266
Total	1,596	137,422	208,980	347,998

Of the 6,871 vehicles with defects involved in accidents, the most common of these were: service brakes defective (19.8%), tire puncture or blow out (11.8%) and insufficient tire tread (9.9%).

Table 5.3**Model Year of Vehicle by Class of Accident 1986**

Model Year of Vehicle	Class of Accident			Total
	Fatal	Personal Injury	Property Damage	
1987	8	690	1,224	1,922
1986	136	12,574	19,597	32,307
1985	191	16,097	24,620	40,908
1984	167	13,767	21,259	35,193
1983	96	9,460	13,910	23,466
1982	91	8,868	12,712	21,671
1981	117	10,881	16,551	27,549
1980	122	10,543	16,452	27,117
1979	119	10,361	16,552	27,032
1978	116	10,047	15,530	25,693
1977 and Earlier	379	25,974	41,304	67,657
Unknown	54	8,160	9,269	17,483
Total	1,596	137,422	208,980	347,998

Table 5.4**Insurance Status of Vehicle by Class of Accident 1986**

Insurance	Class of Accident			Total
	Fatal	Personal Injury	Property Damage	
Insured	1,470	126,546	196,108	324,124
Not Insured	71	4,143	1,708	5,922
Unknown	55	6,733	11,164	17,952
Total	1,596	137,422	208,980	347,998

5b.

putting the vehicle in context

Table 5.5 **Vehicle Population by Type of Vehicle 1986**

Vehicle Class	Active
Passenger	4,244,200
Motorcycle	144,643
Moped	6,628
Commercial	907,744
Bus	17,026
School Bus	8,635
Motorized Snow Vehicle	237,806
Off-Road Vehicle	53,943
Road Building Machinery	1,009
Permanent Apparatus	4,188
Farm Trucks	33,204
Total	5,659,026

Table 5.6 **Selected Types of Vehicles by Model Year 1986**

Vehicle Class	Model Years											Total
	87	86	85	84	83	82	81	80	79	78	77+	
Passenger	93,563	476,712	449,837	406,248	285,939	259,569	341,920	342,757	346,219	338,225	903,211	4,244,200
Motorcycle	60	4,651	11,833	17,587	18,098	20,422	12,563	8,830	8,860	9,504	32,235	144,643
Moped	—	77	118	134	324	411	406	271	311	255	4,321	6,628
Commercial	19,139	102,489	91,268	75,055	46,005	42,840	69,971	65,513	82,914	71,306	279,645	946,145
Bus	216	2,281	2,682	2,285	1,895	1,853	2,198	1,873	1,788	1,726	6,864	25,661
Motorized Snow Vehicle	6,869	8,976	7,739	5,499	6,105	9,572	12,732	24,703	21,641	14,705	119,265	237,806
Off-Road Vehicle	1,081	8,048	10,712	12,648	9,170	4,214	1,923	1,083	962	818	3,284	53,943
Total	120,928	603,234	574,189	519,456	367,536	338,881	441,713	445,030	462,695	436,539	1,348,825	5,659,026

This table reports the registered vehicle population as of December 31, 1986, broken down by model year and vehicle class.

6

vehicles of special interest

Motorcycles, school vehicles, off-road vehicles, trucks and motorized snow vehicles have been identified as vehicles of special interest because they

have unusual accident or population trends, unique operating characteristics or have caused public concern.



6a.**motorcycles****Table 6.1**

**Motorcyclists
Killed and Injured
1982-1986**

Year	Drivers		Passengers	
	Killed	Injured	Killed	Injured
1982	104	4,711	22	930
1983	95	5,069	18	941
1984	116	5,272	19	1,017
1985	97	5,327	23	920
1986	99	5,012	15	870

Over this five year period total motorcycle fatalities and injuries peaked in 1984 and declined in 1985 and again in 1986.

Figure 6.1

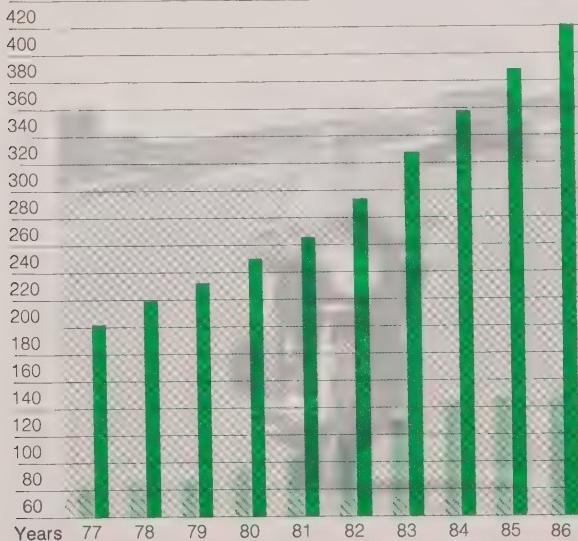
**Registered Motorcycles and
Licensed Motorcyclists
1977-1986**

In 1986, the population of licensed motorcyclists grew to 410,781. The number of vehicle registrations for motorcycles was 144,643.

motorcycle registrations

motorcyclists licensed

thousands

**Table 6.2**

**Selected Factors
Relevant to Fatal Motorcycle
Accidents 1986**

Factors	%
Unlicensed Motorcycle Drivers	32
Under 25 Years Old	62
Valid "M" Licence Less Than One Year	20
Alcohol Used (Driver Fatalities)	46
Helmet Not Worn (Fatalities)	10
Motorcycle Driver Error	
Speed Too Fast/Lost Control	68
Other Error	7
Single Vehicle Accidents	46
Day/Night	61/39
Weekend	46

Inexperience, alcohol use and excessive operating speeds continue to be significant factors in fatal motorcycle accidents.

Also, approximately one-third of the drivers involved in these accidents were not licensed to drive a motorcycle. These operators either had a class "G" (car) licence only, had an "M" (motorcycle) licence which was under suspension or had no driver's licence at all.

6b.**school
vehicles**

Table 6.3 **Pupils Transported Daily, Total Accidents and Injury Rate Per 100,000 Pupils — School Years 1981/82-1985/86**

School Year	Pupils Transported Daily	Total		Injury Rate Per 100,000 Pupils	
		Number of Accidents	Fatal		
				Non-Fatal	
1981/82	597,331	861	0.2		45
1982/83	604,370	808	0.7		27
1983/84	602,898	900	0.3		39
1984/85	622,219	866	—		34
1985/86	652,406	961	0.1		44

Table 6.4 **School Vehicle Type by Nature of Accident 1985/86**

School Vehicle Type	Nature of Accident				Number of Accidents	Total	Five Year Total (1981/82 1985/86)
	Fatal	Pupil Injury	Non-Pupil Injury	Property Damage			
School Bus	6	74	157	515	752		3,657
Van	—	28	56	121	205		714
Station Wagon	—	—	—	1	1		15
Other Buses	—	—	—	3	3		10
Total Accidents	6	102	213	640	961		4,396

Table 6.5 **Pupil Injury by Accident Event and Vehicle Type 1985/86**

School Vehicle Type	Accident Event						Killed	Injured	Total	Five Year Total (1981/82 1985/86)				
	Crossing		Within		Other									
	Road	School Vehicle	Killed	Injured	Killed	Injured								
School Bus	1	20	—	203	—	9	1	232	6	989				
Van	—	1	—	50	—	2	—	53	2	167				
Station Wagon	—	—	—	—	—	—	—	—	—	5				
Other Buses	—	—	—	—	—	—	—	—	—	—				
Total Accidents	1	21	—	253	—	11	1	285	8	1,161				

The number of pupils travelling in school vehicles and the number of school vehicles increase each year. In the 1985/86 school year 6.2% of the fleet were involved in accidents.

In the majority of school bus accidents, the special features of the bus act to protect the pupils, and those pupil injuries incurred are mainly minimal or minor in severity. Of the 961 accidents, pupils were injured in 102 (11%) of the accidents.

6c.**trucks****Table 6.6****Class of Truck Accident
1982-1986**

Year	Class of Accident			Total
	Fatal	Personal Injury	Property Damage	
1982	375	15,896	38,780	55,051
1983	429	15,543	37,000	52,972
1984	381	17,486	41,953	59,820
1985	417	20,149	39,820	60,386
1986	416	21,337	41,142	62,895
Total	2,018	90,411	165,395	291,124

Table 6.7**Driver Licence Class Required
by Class of Truck Accident 1986**

Driver Licence Required	Class of Accident			Total
	Fatal	Personal Injury	Property Damage	
G	266	17,745	33,077	51,088
D	41	1,528	3,528	5,097
A**	109	2,064	4,537	6,710
Total	416	21,337	41,142	62,895

Drivers with a Class G licence may operate light and medium trucks, weighing up to 11,000 kilograms; drivers with a Class D licence may operate heavy straight (non-articulated) trucks; and those with Class A licences may operate articulated tractor/semi-trailer and truck-trailer combinations where the trailer is over 4,600 kilograms.

**Includes truck/trailer combinations requiring a class "A" licence.

Table 6.8**Driver Class Required—
Accidents, Registered Trucks
and Accident Rate 1986**

Driver Licence Required	Accident	Registered	Accident Rate
		Vehicles	
G	51,088	779,311	6.6
D	5,097	90,002	5.8
A*	6,473	76,832	8.4
Total	62,658	946,145	6.6

*Tractor/trailer combinations only.

Data for truck/trailer combinations requiring a Class "A" Driver Licence are not reported separately in the Vehicle Registration System.

Table 6.9**Selected Factors Relevant to Fatal
Truck Accidents 1986**

Factors	Driver Licence Required		
	Class G	Class D	Class A
Driver Condition in Fatal Accidents:			
Alcohol Involved	29.3%	2.4%	3.6%
Driving Properly	43.6%	61.0%	69.7%
Single Vehicle	38.0%	19.5%	13.8%
Vehicle Defect Present	17.3%	22.0%	7.3%
Urban	56.8%	63.4%	24.8%
Daylight	52.6%	80.5%	55.0%

6d.**off-road
vehicles**

**Table 6.10 Accident Location by Off-Road
Vehicle Drivers**
Killed and Injured 1983-1986

Location	Killed				Injured			
	1983	1984	1985	1986	1983	1984	1985	1986
On Highway	3	7	3	6	74	51	92	106
Off Highway	4	—	7	2	85	70	112	89
Total	7	7	10	8	159	121	204	195

**Table 6.11 Accident Location by Off-Road
Vehicle Passengers**
Killed and Injured 1983-1986

Location	Killed				Injured			
	1983	1984	1985	1986	1983	1984	1985	1986
On Highway	1	—	1	—	13	19	23	32
Off Highway	—	—	2	3	24	16	33	23
Total	1	—	3	3	37	35	56	55

The number of off-road vehicle passengers killed and injured appears high considering that the majority of off-road vehicles are not designed to carry passengers. In addition, although on-highway use of off-road vehicles is generally prohibited, nearly half of the accidents occurred there. A total of 11 fatalities and 250 injuries involving these vehicles were reported in 1986.

**Table 6.12 Registered Off-Road
Vehicles 1984-1986**

Year	Vehicles Registered
1984	28,368
1985	43,545
1986	53,943

Off-road vehicles were first required to be registered on June 1, 1984. Off-road vehicles for the purposes of this publication include dune buggies, off-road motorcycles (dirt bikes) and three and four-wheeled all terrain vehicles.

**Table 6.13 Selected Factors Relevant to
All Off-Road Vehicle
Accidents 1986**

Factors	%
Drivers Under 25 Years of Age	68
Alcohol Used	15
Speeding	45
Helmet Not Worn	40
Daytime	72
Three-Wheeled	55
Four-Wheeled	17

6e.

**motorized
snow
vehicles**

Table 6.14 **Accident Location by Motorized Snow Vehicle
Drivers Killed and Injured — Riding Seasons
1981/82-1985/86**

Location	Killed					Injured				
	81/82	82/83	83/84	84/85	85/86	81/82	82/83	83/84	84/85	85/86
On-Highway	18	4	14	8	6	299	109	193	159	192
Off-Highway	5	5	8	5	9	204	116	149	130	168
Total	23	9	22	13	15	503	225	342	289	360

Table 6.15 **Accident Location by Motorized Snow Vehicle
Passengers Killed and Injured — Riding Seasons
1981/82-1985/86**

Location	Killed					Injured				
	81/82	82/83	83/84	84/85	85/86	81/82	82/83	83/84	84/85	85/86
On-Highway	2	—	2	3	—	77	42	59	43	57
Off-Highway	—	2	—	1	1	42	37	42	41	47
Total	2	2	2	4	1	119	79	101	84	104

From 1981/82 to 1985/86, 61% of motorized snow vehicle operator and passenger fatalities occurred in on-highway accidents. During the same period 56% of drivers and passengers injured were involved in on-highway accidents.

Table 6.16 **Registered Motorized
Snow Vehicles 1982-1986**

Year	Registered Motorized Snow Vehicles
1982	169,385
1983	NA*
1984	169,172
1985	209,290
1986	237,806

*Not Available

Table 6.17 **Selected Factors Relevant to
All Motorized Snow Vehicle
Accidents 1985/86**

Factors	%
Unlicensed Operators	17
Rider Error; Speed too Fast	37
Alcohol Used	26
Surface Condition; Icy or Packed Snow	80

7

conviction and suspension data

Volumes of Highway Traffic Act convictions and suspensions were higher in 1986 compared to 1985. Much of the increase in convictions was accounted for by an 18.2% increase in speeding convictions which account for 64.3% of all convictions for Highway Traffic Act violations.

While the number of convictions for offences under the Criminal Code of Canada was lower in 1986 than in previous years it is unclear if this will be a continuing trend or is instead reflective of the introduction of revisions to the minimum mandatory suspension periods which may have impacted on

court proceedings (delays, challenges, appeals). In the absence of data comparing the conviction/charge ratio for 1986 with previous years it would be inappropriate to draw conclusions from the 1986 figures.



7a.**conviction
data****Table 7.1****Summary of Motor Vehicle
Related Convictions 1986**

Convictions	Number
Highway Traffic Act	1,218,963
Regulation H.T.A.	2,892
Criminal Code of Canada	32,339
Municipal By-Law	28,213
Motor Vehicle Accident Claim/Compulsory Insurance Act	21,278
Others	248
Total	1,303,933

Table 7.2**Motor Vehicle Convictions
Related to the
Highway Traffic Act 1986**

Convictions	Number
Equipment	38,185
Administrative*	85,879
Seat Belt (Driver & Passenger)	66,902
Other Non-Pointable Convictions	17
Speeding (< 16 km/h, non-pointable)	383,349
Pointable Speeding	403,463
Other Pointable Convictions (2-4 pt)	212,610
Other Pointable Convictions (5-7 pt)	19,089
Driving While Suspended	12,361
Total	1,221,855

*Non-moving, weight, vehicle registration, licence renewal, etc.

Table 7.3**Motor Vehicle Convictions
Related to the
Criminal Code 1986***

Convictions	Number
Alcohol Related	29,552
Criminal Negligence	124
Fail to Remain at Accident	1,206
Driving While Disqualified	394
Dangerous Driving	1,063
Total	32,339

*This table does not include convictions of young offenders. The most frequent type of traffic convictions registered under the Criminal Code were alcohol related (91%). The drop in the number of convictions related to the Criminal Code is unclear and may reflect the introduction of revisions to the minimum mandatory suspension periods which may in turn have impacted court proceedings.

7b.**suspension
data**

Table 7.4 **Mandatory Suspensions Related to
Criminal Code Convictions
Issued 1986**

Suspensions	Suspension Periods						Total*
	3 Months	6 Months	1 Year	2 Years	3 Years		
Criminal Negligence (s. 203, 204)	18	4	6	—	7		35
Motor Manslaughter	—	—	—	—	—		—
Criminal Negligence (s. 233-1)	44	12	4	—	5		65
Fail to Remain (s. 233-2)	280	96	559	133	89		1,157
Dangerous Driving	334	78	460	90	81		1,043
Impaired Driving (s. 234)	1,639	1,001	6,049	1,859	1,394		11,942
Blood/Alcohol over .08	1,834	817	8,188	1,885	1,115		13,839
Failure to Provide Breath Sample	393	251	886	377	348		2,255
Failure to Provide Roadside Breath Sample	94	36	1	—	16		147
Drive while Disqualified or Prohibited	—	—	339	14	2		355
Total	4,636	2,295	16,492	4,358	3,057		30,838

*Total issued during the calendar year.

New federal and provincial laws relating to drinking and driving took effect December 20, 1985. Individuals convicted of offences which occurred prior to that date were not subject to the longer mandatory suspension periods of the new laws. Previously, the minimum suspensions imposed for a conviction for a driving violation under the Criminal Code of Canada were 3 months for a first conviction, 6 months for the second conviction within five years and 3 years for a third conviction within five years. The new minimum suspension

periods are 1 year for a first conviction, 2 years for a second conviction within five years and 3 years for a third conviction within five years.

Continuing the trend of several years duration suspensions issued for a second conviction in a five year period are approximately one third of the volume of first convictions. Similarly, suspensions for a third conviction in a five year period are approximately one third the number of second convictions.

Table 7.5 **Mandatory Suspensions Related to
Criminal Code Convictions at Year End 1986**

Suspensions	Suspension Periods						Total*
	3 Months	6 Months	1 Year	2 Years	3 Years		
Criminal Negligence (s. 203, 204)	11	4	37	22	13		87
Motor Manslaughter	—	—	—	—	—		—
Criminal Negligence (s. 233-1)	18	12	27	16	36		109
Fail to Remain (s. 233-2)	37	21	581	148	282		1,069
Dangerous Driving	85	29	551	129	205		999
Impaired Driving (s. 234)	173	213	6,142	1,997	4,071		12,596
Blood/Alcohol over .08	149	174	8,212	1,943	2,933		13,411
Failure to Provide Breath Sample	36	39	885	382	987		2,329
Failure to Provide Roadside Breath Sample	8	7	1	2	102		120
Drive while Disqualified or Prohibited	—	—	354	15	2		371
Total	517	499	16,790	4,654	8,631		31,091

*Total as of December 31, 1986.

This table reflects the suspensions in effect at year end.

The total exceeds the number of suspensions issued in 1986

due to the fact that some suspensions are in effect for more than one year.

Table 7.6 Demerit Point Suspensions by Driver Age 1986

Driver Age	Demerit Point Suspensions	Non-Probationary		Non-Probationary Second Accumulation
		First Accumulation	Second Accumulation	
	Probationary			
16	682	—	—	—
17	2,627	—	—	—
18	3,415	14	—	—
19	2,345	131	2	—
20-24	5,246	1,787	166	—
25-34	2,738	1,235	116	—
35-44	650	405	40	—
45-54	209	128	8	—
55-64	65	53	8	—
65-74	11	9	1	—
75+	3	3	1	—
Total	17,991	3,765	342	

Newly licensed drivers are covered by the probationary licence system until they have successfully completed two one-year periods of suspension free driving. Probationary drivers are suspended for 30 days after accumulating 6 or

more demerit points. Non-probationary drivers are suspended for 30 days on the first accumulation of 15 dermerit points and are suspended for 6 months on the second accumulation of 15 points within 2 years.

Table 7.7 Criminal Code Suspensions by Driver Age 1986

Criminal Code Suspensions	Driver Age							Total
	16-19	20-24	25-34	35-44	45-54	55-64	65+	
Criminal Negligence	8	25	29	19	9	1	2	93
Failure to Remain	63	340	366	145	73	42	14	1,043
Dangerous Driving	124	360	239	72	18	14	4	831
Impaired Driving	354	2,193	3,792	2,041	1,043	531	165	10,119
Blood/Alcohol over .08	520	3,118	4,330	2,028	965	488	145	11,594
Failure to Provide Breath Sample	23	272	619	387	162	76	16	1,555
Failure to Provide Roadside Breath Sample	—	38	48	31	24	4	1	146
Total	1,092	6,346	9,423	4,723	2,294	1,156	347	25,381

Twenty-five to thirty-four year olds received the highest number of criminal code convictions. This group is also the largest in the driver population. Only the suspensions issued

under the previous legislation are recorded here. While the figures are not definitive, they are believed to be representative.

appendix

a. glossary of terms

Ability Impaired by Alcohol:

Driving while one's ability is impaired by alcohol or driving with a blood alcohol concentration exceeding 80 milligrams in 100 millilitres of blood.

Class L Driver's Licence:

The learner's licence that allows the holder to drive any motor vehicle that requires a class G driver's licence (e.g. an automobile) on the road, providing that the holder of a class G licence or any other higher licence class (A, B, C, D, E, and F) is occupying the seat beside him/her for the purpose of giving instruction.

Class R Driver's Licence:

The learner's licence that allows the holder to operate a motorcycle for the purposes of training. Class R licensed motorcyclists are prohibited from nighttime riding, carrying passengers and travelling on high speed highways with the exceptions of Highways 11 and 17.

Conviction:

Awarded when a person pleads guilty to, or is found guilty of, an offence related to a motor vehicle under any Act of the Ontario Legislature or its accompanying regulations, under the Parliament of Canada or any accompanying order, or under any municipal by-law.

Driver:

Unless specified otherwise, any person, whether licensed or not, considered to be in care and control of a motor vehicle at the time of an accident.

Fatal Accident:

A motor vehicle accident in which at least one person sustains bodily injuries resulting in death.*

Had Been Drinking:

Driving after having drunk an amount of alcohol not considered sufficient to be legally impairing or with a measured blood alcohol count of greater than zero but less than 80 milligrams.

Highway:

A common and public highway, street, avenue etc., any part of which is intended for public use or used by the general public for the passage of vehicles and including the area between the property lines.

Kilometres Travelled:

Vehicle fleet mileage is estimated on the basis of taxed gasoline and motor fuel sales. Total litres sold are converted to kilometres travelled based on a conversion factor of 22.0 kilometres per gallon.

Major Injury:

A non-fatal injury severe enough to require that the injured person be admitted to hospital, even if for observation only.

Minimal Injury:

A non-fatal injury, including minor abrasions and bruises, which does not necessitate the injured person going to a hospital.

Minor Injury:

A non-fatal injury requiring medical treatment at a hospital emergency room, but not requiring hospitalization of the involved person.

Motor Vehicle Accident:

Any incident in which bodily injury or damage to property is sustained as a result of the movement of a motor vehicle, or of its load while a motor vehicle is in motion.

Off-Highway Accidents:

An off-highway accident involving any of the motorized vehicles which are covered by legislation under the Highway Traffic Act, the Motorized Snow Vehicles Act, and the Off-Road Vehicles Act.

On-Highway Accidents:

A motor vehicle accident which occurs on the highway, between the property lines.

Pedestrian:

Any person not riding in or on a vehicle involved in a motor vehicle accident.

Personal Injury Accident:

A motor vehicle accident in which at least one person involved sustains bodily injuries not resulting in death.

Property Damage Accident:

A motor vehicle accident in which no person sustains bodily injury, but in which there is damage to any public property or damage to private property** including damage to the motor vehicle or its load.

Reportable Accident:

Any fatal or injury accident, or any accident in which there is any damage to public property or damage to private property in excess of a monetary value prescribed in law.**

Suspension:

Withdrawal of a driver's privilege to operate a motor vehicle for a prescribed period of time.

* Prior to January 1, 1982, fatal accident statistics included deaths attributed to accidental injuries up to one year after the accident. Since that date, only deaths from injuries within thirty days of the accident have been included.

** The minimum reportable level for property damage only accidents rose from \$200 to \$400 on January 1, 1978 and rose again to \$700 on January 1, 1985.

8b.

ministry of transportation and communications highway safety publications

Driver's Handbooks

- The Driver's Handbook
- Driver's Manual for Adult New Readers
- Motorcycle Driver's Manual
- School Bus Manual
- Truck and Bus Manual
- Recreational Vehicles Handbook
- The Bicyclist's Handbook

Driver Instruction

- Roadworthy (Textbook, Classroom Teacher's Manual, In-Car Teacher's Manual)

Drinking and Driving

- Drinking and Driving — Smashed (Pamphlet)
- Drinking, Driving and the Law (Slide Presentation)
- Three For the Road: 1. Power Under Control
- 2. The Alcohol You 3. No Thanks I'm Driving (Film Trilogy)

Seat Belts and Child Restraints

- What You Should Know About Seat Belts (Pamphlet)
- Seat Belt (Poster)
- Life Is Precious (Child Restraint Pamphlet, Poster)
- Protect Your Children (Pamphlet)
- Child Restraint Manual (Manual for Educators and Persons Organizing Rental Programs)
- Seat Belt-Fairy Car Father (Teacher's Handbook, Comic Book, Decals)
- The Human Collision (Film)
- Dice In A Box (Film)
- Life Is Precious — Buckle Them In (Film)
- Citizen Seat Belt (Film)

Motorcycles

- Ontario Motorcycling Facts (Pamphlet)
- All Those Who Like To Ride ... (Drinking and Riding Poster)

School Vehicles

- School Bus Stopping Law (Pamphlet, Poster)
- Driver Improvement Course for School Bus Drivers (Instructor's Manual, Test Sheets and Certificates)
- School Bus Drivers Have A Big Responsibility (Folder, Pamphlet)
- How We Ride (Colouring Book, Poster)
- Duties of Patrollers (Folder)
- Sam the Safety Duck — On the Buses (Pamphlet, Film, Decals)
- Death Zones (Film)

Off-Road Vehicles and Motorized Snow Vehicles

- 1985 Ontario Off-Road Vehicle Statistics (Pamphlet)
- 1985/86 Ontario Motorized Snow Vehicle Facts (Pamphlet)

Bicycles

- Bicycle Safety Program (Instructor's Manual, and Supplies)
- Sam the Safety Duck — Bicycle Safety (Film)
- Bicycle Safety — Teens and Adults (Posters)

General

- Good Driving Practices (Pamphlet)
- Guide for Disabled Drivers (Pamphlet)
- Pedestrians (Pamphlet, Poster)
- Senior Citizens (Pamphlet)
- Winter Driving Tips (Pamphlet)
- Sam the Safety Duck — On Winter Safety (Film)

Power Under Control: Limits of Performance (Winter Driving Film)

- Seconds Can Save (Pamphlet)
- Daytime Driving Lights (Poster and Pamphlet)

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